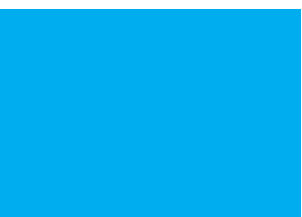


# Strategic Plan for Asthma in Massachusetts 2009 – 2014

RELEASED MAY 2009





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RELEASED MAY 2009



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### About the Massachusetts Asthma Advocacy Partnership

The Massachusetts Asthma Advocacy Partnership's (MAAP) mission is to reduce asthma health disparities and improve the quality of life for all people with asthma in the Commonwealth by coordinating statewide efforts. MAAP is the only statewide asthma partnership that links to local efforts across the state and brings together community organizations and others to achieve sustainable statewide changes in the environment, education and quality of health care as they relate to asthma. MAAP is a program of The Medical Foundation's Environmental Health Department, a nonprofit, public health and medical research funding organization committed to helping people live healthier lives and creating healthy communities through prevention, health promotion and research.

Currently, MAAP has over 80 members, with representation from asthma coalitions, health centers, hospitals, parents of children with asthma, health insurers, voluntary organizations, unions, community-based organizations, school nurses, physicians, local boards of health, community activists, and others. It has five active committees: Steering, Housing, Schools/Child Care, Health, and Occupational Asthma. These five committees put in a lot of time and effort to develop this plan. The Committee Chairs – Matt Sadof, Edna Carrasco, Dave Turcotte, Tolle Graham, Lisa Mannix, Megan Sandel, Elise Pechter and Elaine Rosenberg – committed a significant amount of time in the development of this document.

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## About the Asthma Prevention and Control Program at the Massachusetts Department of Public Health

The Massachusetts Department of Public Health (MDPH), Asthma Prevention and Control Program (APCP), in collaboration with other state agencies and community partners is working to improve the quality of life for all Massachusetts residents with asthma and to reduce disparities in asthma outcomes. Funded by the Center for Disease Control and Prevention, the scope of the APCP activities includes conducting asthma surveillance, supporting and promoting state and regional partnerships, evaluating and sustaining effective interventions to reduce asthma disparities in Massachusetts, conducting interventions and promoting policies that improve asthma outcomes and support primary prevention of asthma in certain occupational settings and reducing exposure to second-hand tobacco smoke, where possible. Several strategies undertaken by the APCP to meet the program's mission include:

- Administer the Asthma Disparities Initiative. APCP funds pilot projects in priority regions most affected by hospitalizations due to asthma in Massachusetts (i.e. Boston, Brockton, Springfield, New Bedford, and Fall River) through the Asthma Disparities Initiative. The interventions are designed to improve clinical care and to develop and coordinate regional asthma coalitions.
- Conduct asthma surveillance.
- Support and participate in the Massachusetts Asthma Advocacy Partnership (MAAP), a statewide coalition made up of over 80 member organizations.
- Collaborate with other health promotion and disease prevention programs and other state agencies to develop and sustain an infrastructure that supports programmatic integration to help Massachusetts residents manage their chronic diseases.
- Provide Asthma Action Plans for children and adults in seven languages.

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This strategic plan was supported by Cooperative Agreement Number U59EH123176 from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

# About This Document



The goals, objectives and strategies listed in this strategic plan represent the collective opinion of the lead partners and others who were involved in the drafting of the plan on what is needed and achievable to address asthma in the next five years. It attempts to draw on the unique opportunities present in Massachusetts and highlights the on-going work of its partners.

---

## Lead Partners

The lead partners to this document agree to actively pursue the strategies for which they are listed in support of the goals and objectives of this document. It is a commitment from the partner to make that strategy occur. However, many of the commitments in the document are contingent upon available staffing and resources. Therefore, the commitments are not binding but are statements of intent. In addition, strategies may change as outcomes and processes are evaluated. We will update this plan regularly to ensure that it represents any changes to partner commitments or to the collective opinion on the best strategies.

The Massachusetts Asthma Advocacy Partnership and the Asthma Prevention and Control Program at the Massachusetts Department of Public Health will coordinate the work under the goals related to asthma management, environmental exposures and partnership. Massachusetts Department of Public Health's Asthma Prevention and Control Program will coordinate the work under the goals related to Asthma Surveillance and State Asthma Plan evaluation. As coordinators of the State Asthma Plan, both the Massachusetts Asthma Advocacy Partnership and the Asthma Prevention and Control Program at the Massachusetts Department of Public Health will assist the lead partners in accomplishing their work, as needed and as is feasible. They will communicate with the partners regularly and add new partners as they arise. They will regularly update the plan.



# Executive Summary

Asthma is a complex disease that requires a multi-faceted approach to reduce the burden it places on the residents of Massachusetts. Currently, there is no known cure for asthma. Research on the causes of asthma and on interventions to prevent asthma in high risk populations is evolving. Greater support for relevant science and strategic focus on opportunities to prevent new cases of asthma are important, but the greatest need for reducing the burden of asthma in Massachusetts is among people who already have the disease. Therefore, the primary over-arching goals of this document are to 1) improve the quality of life for all Massachusetts residents who have asthma and 2) reduce disparities in asthma outcomes between distinct population groups.

No single intervention can accomplish these goals in the Commonwealth. Instead, multiple evidenced-based efforts aimed at addressing the clinical and environmental aspects of asthma are required to truly see improvements. Primary prevention efforts – those that focus on preventing the development of asthma – will be implemented in the areas of occupational asthma and tobacco cessation where primary prevention has been shown effective. The majority of efforts are aimed at tertiary prevention – preventing disease complications for those with the diagnosis of asthma. All these efforts require coordination to be effective and avoid duplication. This strategic plan represents a coordinated approach that targets both clinical and environmental aspects of asthma. It relies on a strong surveillance system to inform its work. Active state-wide and local partnerships are required to accomplish these goals.

The strategic plan is a living document that reflects the priorities of the partners and the opportunities available at the time of drafting. It spans the five years of 2009 - 2014. However, it will be updated annually to ensure that it continues to reflect the partners' priorities and state opportunities and add objectives of new partners.

The plan builds on extensive work of its partners over the last two years since *The Health of Massachusetts: a Coordinated Response to Asthma* was published in 2006. It reflects the current work of the partners to the plan and the collective vision of the work that needs to be done. It is a roadmap for the future. To accomplish the goals and objectives, the continued participation of partners is needed, along with the addition of new partners.



*The Burden of Asthma in Massachusetts* report, published in 2009, is a companion document to this one. It presents data that highlight the continued need for aggressive action to improve asthma outcomes in the Commonwealth. The surveillance data contained in the burden document informed the goals and objectives of this plan.

There are six goals in this plan: 1) enhance asthma surveillance to inform asthma prevention and control efforts in Massachusetts, 2) improve asthma management for Massachusetts residents, 3) reduce exposure to environmental factors that cause and/or exacerbate asthma in Massachusetts, 4) develop a roadmap for better understanding the causes of asthma and the role of primary prevention, 5) increase capacity of the statewide and local partnerships to implement the plan and 6) evaluate Massachusetts' progress on the plan.



# Asthma in Massachusetts

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## What is Asthma?

Asthma is a chronic inflammatory disease of the airways. Airways become constricted with swelling and excessive mucous production, making it difficult to breathe. Symptoms of asthma are wheezing, coughing, and chest tightness. Sometimes the symptoms become so severe they result in an asthma attack that requires immediate medical treatment. Asthma affects individuals differently resulting in differing severity, symptoms and responsiveness to treatment. When not treated, asthma can cause disability and even death.

The development of asthma relies on a complex interaction between genetics and environmental exposures.<sup>1</sup> The environment also plays a critical role in the worsening of asthma symptoms once a person develops asthma. For the most part, the evidence base on effective interventions for preventing asthma is weak. Occupational asthma is the only area where primary prevention has been found effective.<sup>2</sup> However, asthma can be controlled with proper assessment and monitoring, patient education, control of environmental and other factors contributing to asthma severity, and pharmacologic treatment.<sup>3</sup>

All people with asthma should be able to lead full and active lives. This plan seeks to support Massachusetts residents in that goal.

---

## Asthma in Massachusetts

Asthma is a significant public health problem in the United States and in Massachusetts. In 2005 in the United States, over 22.2 million people currently had asthma (1 in 13 Americans), including an estimated 8.9% of children and 7.2% of adults.<sup>4</sup> Nationally, the prevalence of asthma has been increasing since 1980 across all age, sex, and racial groups.<sup>5,6</sup> In Massachusetts, the prevalence of asthma is among the highest reported for states across the nation.

The costs, both direct and indirect, associated with asthma are substantial. The American Lung Association estimates that asthma burdens our nation with an annual economic cost of \$14.7 billion in direct health care costs and another \$5 billion in indirect costs (lost productivity) for

a total of \$19.7 billion (in 2007 dollars).<sup>7</sup> Furthermore, in 2003, the Centers for Disease Control and Prevention (CDC) estimated that asthma resulted in 12.8 million missed school days among children ages 5-17 years and nearly 10.1 million missed workdays among adults currently employed.<sup>8</sup>

*The Burden of Asthma in Massachusetts* report, published by the Massachusetts Department of Public Health in 2009, presents comprehensive asthma data for Massachusetts.

Below are key data findings from this report.

---

### **The Prevalence of Asthma is High in Massachusetts**

- In 2007, approximately 1 in 10 people in Massachusetts – 9.9% of adults and 10.3% children – currently had asthma.
- Adult asthma prevalence is increasing. From 2000 through 2007, the prevalence of lifetime asthma increased 29.4% and current asthma increased 16.5% among Massachusetts adults.
- The prevalence of lifetime and current asthma among adults was higher in Massachusetts than the nation.
- In Massachusetts, prevalence of current asthma was higher among
  - Adult females (compared to adult males)
  - Male children (compared to female children)
  - Adults and children in households with lower incomes
  - Adults and children in households with lower educational attainment of the adult
  - Adults who smoke
  - Adults and children who have a disability
- The prevalence of lifetime asthma in Massachusetts was higher among Hispanic (17.3%) than White, non-Hispanic (14.6%) adults, whereas the prevalence of current asthma among adults was similar across race/ethnicity subgroups from 2005 through 2007.
- Among children in Massachusetts, the prevalence of current asthma was higher among Black, non-Hispanic and Hispanic children than White, non-Hispanic children. However, these differences were not statistically significant.
- Among Massachusetts adults who were ever diagnosed with asthma, 49% were first diagnosed as an adult.

---

### **Asthma Seriously Affects the Lives of People in Massachusetts**

- In Massachusetts, 75.7% of adults and 65.2% of children with current asthma were classified as having not well controlled or very poorly controlled asthma.
  - Among adults with poorly controlled asthma, 42.7% reported cost

was a barrier to care.

- 57.8% of adults with current asthma reported they limited their usual activities a little to a moderate amount. 4.7% limited their usual activities a lot.
- Approximately 21.9% of adults with current asthma were unable to work for at least one day during the past twelve months due to asthma.
- 35.2% of Massachusetts adults with current asthma reported a diagnosis of depression.

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### **Massachusetts is Meeting National Targets for Asthma Self-Management Education**

- Massachusetts is demonstrating progress towards meeting Healthy People 2010 (HP2010) targets for asthma. Among adults with current asthma,
  - 97.6% received instruction on how to use a prescribed inhaler properly (HP2010 Target: 98.8%)
  - 79.8% were taught how to respond to an asthma attack or episode (HP2010 Target: 71%)
  - 33.4% received an asthma action plan (HP2010 Target: 38%)

---

### **Asthma is Costly**

- The total charges for hospitalization due to asthma in Massachusetts increased 77.7% from \$50 million in 2000 to \$89 million in 2006.
- In 2006, public insurance (including Free Care, Medicare, and Medicaid) was the expected payer for 62.6% of hospitalizations due to asthma.

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### **Many Working Adults Report Their Work Environment Causes or Makes Their Asthma Worse**

- Among adults with current asthma, 40.2% reported that their asthma was either caused or made worse by exposures at either their current or previous job.
- Among adults with lifetime asthma who reported that their asthma was caused or made worse by either their current or previous job, only 26.8% (95% C.I. 24.2-29.4) reported discussing the relation of their asthma to work with their health care provider.

---

### **Hospital Utilization for Asthma is High but Stable**

- In 2005, there were 36,146 emergency department discharges, 9,457 hospitalizations (in 2006), and 2,101 observation stays due to asthma in Massachusetts.



- On average from 2002 through 2005 there were
  - 37,412 episodes of care due to asthma at an emergency department every year, and
  - 102 episodes of care due to asthma at an emergency department every day.
- From 1994 through 1998, the age-adjusted rate of hospitalizations due to asthma decreased 31% from 18.4 to 12.7 per 10,000 residents. From 1999 through 2006, the rate remained relatively stable from 13.5 to 14.7 per 10,000 residents, despite an increase in prevalence.
- The rate of emergency department visits due to asthma also remained stable from 2002 through 2005.

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## **Disparities Exist in Hospitalizations, Emergency Department Visits, and Outpatient Observation Stays**

### **By Age**

- Children ages 0–4 years had the highest rates of emergency department visits, outpatient observation stays, and hospitalization due to asthma.
- Adults ages 65 years and older had the 2nd highest rate of hospitalization due to asthma, but had the lowest rates of emergency department visits and outpatient observation stays due to asthma.
- From 2000 through 2006, the rate of hospitalization due to asthma among adults ages 65 years and older increased 49.4% from 17.6 to 26.3 per 10,000 residents.
- In 2006, the average length of stay for a hospitalization due to asthma varied by age group from a low of 2.0 days among children ages 0–4 years to a high of 4.7 days among adults ages 65+ years.

### **By Gender**

- Similar to the pattern in prevalence by gender and age subgroup, the rates of hospitalization due to asthma were higher among males than females in the 0–4 and 5–11 age subgroups. Starting in the 18–24 age subgroups, the rates of hospitalization due to asthma were higher among females than males.

### **By Race/Ethnicity**

- From 2000 through 2006, Black, non-Hispanics and Hispanics consistently had substantially higher age-adjusted rates of hospitalization due to asthma than White, non-Hispanics.

### **By Geography**

- The three-year average rates of hospitalization due to asthma were not evenly distributed among the Community Health Network Area's (CHNA) in the state. The CHNA's with a rate higher than the state-wide rate (14.1 per 10,000 residents) were:
  - CHNA 25: Partners for Healthier Communities (Fall River) (29.3 per 10,000)

- CHNA 19: Alliance for Community Health (Boston/Chelsea/Revere/Winthrop) (25.5 per 10,000)
- CHNA 26: Greater New Bedford Community Health Network (22.5 per 10,000)
- CHNA 22: Greater Brockton Community Health Network (19.0 per 10,000)
- CHNA 8: Common Pathways (Worcester) (16.6 per 10,000)
- CHNA 4: The Community Health Connection (Springfield) (16.1 per 10,000)
- CHNA 5: Community Health Network of Southern Worcester County (16.0 per 10,000).

### **By Season**

- The highest frequency of hospitalizations due to asthma was in the fall/winter months and the lowest frequency was in the summer months.

---

### **Asthma Mortality is Rare but Disparities Exist**

- From 1990 through 2006, there were 1,708 deaths due to asthma among Massachusetts residents, an average of 100 per year. During this time period, the Massachusetts asthma death rate decreased 63.8% from 19.6 to 7.1 per 1,000,000 residents ( $\rho=-0.922$ ,  $p<0.0001$ ).

### **By Age**

- The five-year (2002-2006) average age-specific death rate due to asthma was highest among adults ages 65 years and older in Massachusetts (46.9 per 1,000,000 residents).

### **By Race/Ethnicity**

- The five-year (2002-2006) average age-adjusted death rate due to asthma among Black, non-Hispanics was 3.4 times the rate among White, non-Hispanics. Among Hispanics, the rate was 2.7 times the rate among White, non-Hispanics.

### **By Geography**

- The five-year average death rate due to asthma was higher in CHNA 19: Alliance for Community Health (16.8 per 1,000,000 residents) than the overall statewide rate (10.5 per 1,000,000 residents).

---

### **Background for the Massachusetts Strategic Plan on Asthma**

Major changes related to health care access, health disparities, and chronic disease management have occurred in the Commonwealth in the last year and a half. These changes offer unique opportunities to improve asthma outcomes and meet objectives in the State Asthma Plan.

## **Health Care Reform**

On April 12, 2006, the legislature passed the Health Care Reform Act to provide increased access to health care for Massachusetts residents. The provisions of the Act did not become fully operational until October 1, 2007. In the summer of 2008, the legislature passed related Health Care Reform legislation focused on containing cost and improving quality of care.

Health Care Reform is based on the concept of shared responsibility between people, business and government. The new law requires all persons to purchase health coverage if they can afford it; it requires businesses that do not provide coverage to employees to help pay for it; and it requires the government to provide subsidies to ensure affordability.

To ensure health care access for all, the law created the Commonwealth Health Insurance Connector Authority to link individuals statewide to affordable healthcare options. Many individuals from low household incomes will receive primary care services at Safety Net sites - community health centers and hospitals with licensed primary care centers. These Safety Net providers have access to the Safety Net Trust fund established under health care reform legislation.

The Health Care Reform law also created the Health Care Quality and Cost Council (HCQCC) to establish statewide measures to improve health care quality, contain health care costs, and reduce racial and ethnic disparities in health care. In addition, it charged the Massachusetts Department of Public Health (MDPH) to investigate and study 1) use and funding of community health workers by public and private entities, 2) access to health care, particularly Medicaid-funded health and public health services and 3) health disparities among vulnerable populations.

The second health care reform law, an Act to Promote Cost Containment, Transparency and Efficiency in the Delivery of Quality Health Care, focuses on cost containment, efficiency, and the adoption of health information technology. It requires MDPH to promulgate regulations by 2012 that will require hospitals and community health centers to implement Computerized Physician Order Entry systems. By 2015, MDPH must promulgate regulations requiring hospitals and community health centers to implement interoperable electronic health record systems.

## **Chronic Disease Blueprint**

One strategy developed by the HCQCC to improve the quality and management of health care for Massachusetts citizen is a chronic disease blueprint. The goal of is to suggest a statewide model system of care that improves the health status of people with, or at risk for, chronic conditions. HCQCC prioritized three diseases: asthma, diabetes and chronic heart failure. While the blueprint has not yet been released, it will provide additional support for improving asthma outcomes in the future.

### **Healthy Massachusetts Compact**

In response to Health Care Reform, Governor Patrick signed the Establishing the Healthy Massachusetts Compact Executive Order to ensure coordination of efforts among all state offices and agencies that address health care or public health for the purpose of containing cost, advancing health care quality, and promoting individual health and wellness across the lifespan. The compact has five principles: 1) ensuring access to care; 2) advancing health care quality; 3) containing health care costs; 4) promoting individual wellness; and 5) promoting healthy communities. Signatories of the Compact include the MDPH, the Office of Elder Affairs and Medicaid (among others). These agencies committed to 15 strategies several of which are relevant to the goals and objectives of the plan: a) adopting the highest quality health care standards; b) promoting the management of chronic disease within primary care settings; c) structuring payment systems to promote wellness and the prevention of chronic disease; d) partnering with businesses, schools and other agencies to promote wellness and chronic disease prevention; e) supporting and collaborating with communities in their efforts to promote healthy environments and individual wellness; and f) eliminating racial and ethnic health disparities through health care quality improvement, systems reform, community interventions and collaborations with communities.

### **Office of Health Equity**

In 2007, the Office for Health Equity was created at the Massachusetts Department of Public Health (MDPH) to promote and coordinate disparity reduction across all bureaus. MDPH has produced comprehensive reports on health disparities by region and for the state (which include asthma). This office also has released grants to community based organizations across the state focused on exploring different approaches to addressing health disparities.

These efforts in Massachusetts serve as the backdrop for the State Asthma Plan.



# Framework for the Plan



The framework of the *Strategic Plan for Asthma in Massachusetts 2009 – 2014* is the social ecological model. This model recognizes that improving asthma control is not the sole responsibility of the person with asthma. Instead, many factors affect a person's asthma: the quality of health care they receive, the environmental exposures in the home, school, child care or work environment, the air they breathe and their own individual behaviors. To truly reduce disparities in asthma outcomes and improve the quality of life for all people with asthma, we need to take collective action on multiple levels (individual, family, community, and society) and in multiple settings (health care clinics, homes, schools, child care settings, work, and outdoor).







# Goals, Objectives, Strategies



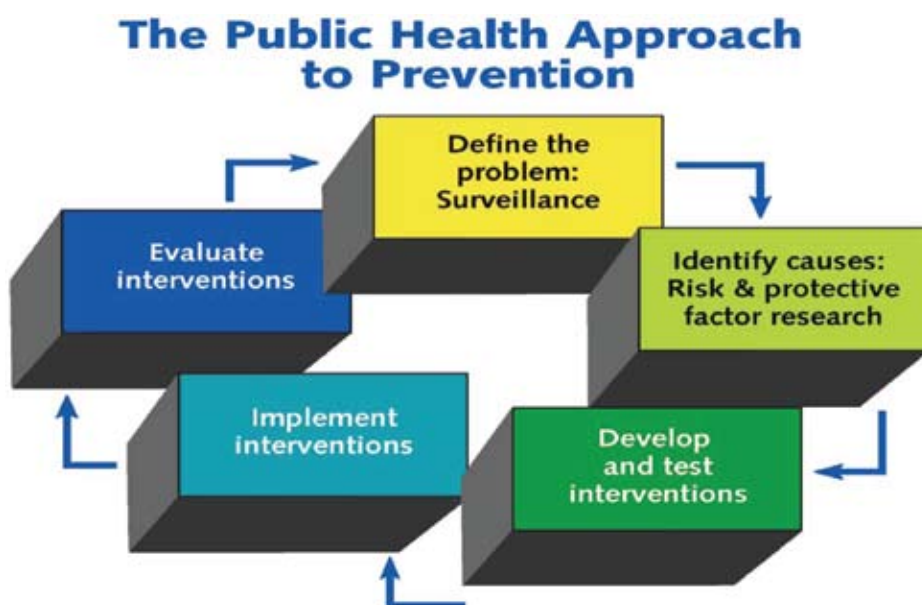
## GOAL

# 1

## Enhance Asthma Surveillance to Inform Asthma Prevention and Control Efforts in Massachusetts

**S**urveillance is the ongoing systematic collection, analysis, interpretation and timely dissemination of health data for use in public health practice. The ultimate goal is to inform actions that aim to reduce morbidity and mortality and to improve health. As the foundation of a public health approach to prevention, surveillance is essential to planning, implementing, and evaluating public health efforts. Accordingly, asthma surveillance data should help asthma prevention and control advocates and professionals working with affected populations define public health priorities, plan effective interventions, and develop policies to reduce the burden of asthma in Massachusetts.

The diagram below demonstrates the public health model for prevention.



Source: Suicide Prevention Resource Center, [www.sprc.org](http://www.sprc.org). Accessed on April 6, 2009.

Several programs at MDPH collect, analyze, disseminate and/or use asthma data. These include, but are not limited to the following programs:

- Asthma Prevention and Control Program
- Occupational Health Surveillance Program
- Environmental Public Health Tracking Program
- Essential School Health Services Program
- Health Survey Program
- Tobacco Prevention and Control Program



Several data sources are available to and utilized by multiple programs at MDPH to provide a picture of asthma in Massachusetts. The Behavioral Risk Factor Surveillance System (BRFSS) provides state- and regional-level prevalence estimates for adults and children. The Asthma Call-back Survey provides state-level prevalence estimates of various asthma management and control activities among the population with asthma. The Massachusetts Youth Health Survey provides state prevalence estimates among school-aged children in middle and high school. The Pediatric Asthma Survey estimates the state and municipal-level prevalence among elementary and middle school-aged children (K through 8th grade). The Essential School Health Services (ESHS) program data documents the wide variety of duties performed by school nurses funded through the ESHS initiative. Data pertaining to hospitalizations, observation stays, and emergency department visits due to asthma are available from all acute care hospitals in Massachusetts except federal, psychiatric, or rehabilitation hospitals and private clinics. Mortality data from the Massachusetts Registry of Vital Records and Statistics are used to examine deaths with asthma listed as the cause of death. For case-based surveillance, the MDPH Occupational Health Surveillance Program investigates new and work-aggravated cases of asthma among workers identified through the Sentinel Event Notification System for Occupational Risk (SENSOR) ([www.mass.gov/dph/ohsp](http://www.mass.gov/dph/ohsp)). Regarding the sanitation and condition of public institutions, the Emergency Response/Indoor Air Quality Program conducts assessments of the indoor air quality of public buildings in Massachusetts. Copies of the Indoor Air Quality reports are available online ([www.mass.gov/dph/environmental\\_health](http://www.mass.gov/dph/environmental_health)). Most recently, through the Massachusetts Asthma Disparities Initiative, the APCP collects patient-level information on a variety of asthma management measures including self-management education, exposure to triggers in the home, and medication use.

These data sources are utilized to track many of the measures recommended or required from several national and state-level agencies or initiatives, such as:

- Healthy People 2010
- Council for State and Territorial Epidemiologists
- Center for Chronic Disease Prevention and Health Promotion
- National Center for Environmental Health
- Massachusetts Asthma Provider Consensus Statement (Asthma Regional Council of New England/U. Mass. Lowell)
- Chronic Disease Blueprint of Massachusetts
- MDPH Asthma Disparities Initiative

While these data sources are extremely useful for conducting asthma surveillance, the data are subject to limitations. These limitations include:

- Prevalence estimates are based on self-report, not documented physician diagnoses.

- There is no public access to data on the utilization (and quality) of primary care services for asthma, including routine check-ups.
- Hospitalization and ED usage rates are based on visits not individuals.
- Work-related asthma data are limited due to underreporting of occupational diseases as a whole.
- There is a lack of data on costs attributed to asthma and/or asthma-related illnesses in Massachusetts.
- Currently, there is no systematic method of receiving stakeholder input into strategic planning for asthma surveillance.

Goal 1 focuses on enhancing the collection, analysis, dissemination and use of Massachusetts asthma data to better inform asthma prevention and control efforts in the Commonwealth. Collaboration among MDPH programs is assumed, unless noted.



**OBJECTIVE:** Review and update basic protocols for conducting asthma surveillance at MDPH

**Lead Partners:** Massachusetts Department of Public Health

**Target:** Updated protocols

- I. Update intra-agency memoranda of understanding to access data.
- II. Review, update if necessary, and adopt standardized definitions to be used for tracking progress. (e.g. asthma-related Healthy People 2010 objective, Chronic Disease, Environmental Health and Occupational Health Indicators, the Massachusetts State Asthma Plan).



**OBJECTIVE:** Maintain and enhance data collection systems for asthma surveillance.

**Lead Partners:** Massachusetts Department of Public Health

**Supporting Partners:** Asthma Disparities Initiative sites

**Measures:** Enhance 2 data collection systems

Potential areas include:

- I. Add questions to the Youth Health Survey to capture missed school days
- II. Include questions in the BRFSS Core Survey about the industry and occupation of the adult respondent to aid in analysis of work-

related asthma and environmental exposures.

- III. Ask work-related asthma questions at the intervention sites funded through the Asthma Disparities Initiative.
- IV. Collect race and ethnicity on the Pediatric Asthma Surveillance.
- V. Increase surveillance of causes and triggers of asthma (e.g. Outdoor Air Pollution from MDPH Bureau of Environmental Health, SENSOR from MDPH Occupational Health Surveillance Program)



**OBJECTIVE:** Continue and expand analyses for asthma surveillance.

**Lead Partners:** MDPH

**Target:** Expand asthma surveillance to include at least 2 additional analyses.

Potential expanded areas include:

- I. Develop measures and identify datasets for assessing potential changes in asthma control resulting from increased health care access through health care reform. By 2010, MDPH will analyze and interpret these measures.
- II. Expand information related to asthma disparities by geography of residence, age group, education level, insurance status, industry and occupation, country of birth.
- III. Analyze direct and indirect costs associated with asthma.
- IV. Examine asthma management and control measures among older adults.
- V. Expand information about individuals with poorly controlled asthma.
- VI. Expand information about medication use among individuals with asthma.
- VII. Examine rates of inpatient hospitalization due to asthma using multiple diagnosis fields.
- VIII. Analyze the burden of asthma among populations with small sample sizes (e.g. rural areas, ethnic subgroups).

- IX. Create additional asthma management and control measures.
- X. Develop a core set of indicators, including asthma indicators, for assessing chronic disease integration in Massachusetts and analyze/interpret core indicators.



**OBJECTIVE:** Identify and utilize new data sources for asthma surveillance.

**Lead Partners:** MDPH

**Supporting Partners:** Massachusetts Division of Health Care Finance and Policy, Toxics Use Reduction Institute

**Target:** Utilize 1 new data source.

Potential expanded areas include:

- I. Obtain access to the All-Claims Dataset administered by the Massachusetts Division of Health Care Finance and Policy. By 2011, MDPH will develop an analysis plan and conduct analyses of asthma measures captured in the All-Claims database with a particular emphasis on use of primary care services.
- II. Review the technical specifications of the MassHealth (Medicaid) dataset. By 2013, MDPH will submit a data request to MassHealth. Since the Medicaid population is known to be disproportionately affected by asthma, the findings are intended to better target asthma prevention and control efforts in Massachusetts.
- III. Evaluate utility of Worker's Compensation Claims for work-related asthma surveillance.
- IV. Obtain state-level estimates of the prevalence of asthma among specific subpopulations at risk of having asthma from NHANES (e.g., US-born versus foreign-born).
- V. Analyze data on uses and releases of asthmagens reported under the Toxics Use Reduction Act (TURA).



**OBJECTIVE:** Update and disseminate asthma data in reports used by local, state, and national partners.

**Lead Partner:** MDPH, Metropolitan Area Planning Council

**Target:** Disseminate data products.

- I. The Burden of Asthma in Massachusetts report, every 3 years
- II. BRFSS report, annually
- III. Youth Health Survey report, in alternate years
- IV. Pediatric Asthma Surveillance report, annually
- V. Essential School Health Services report, annually
- VI. Instant Topics report on MassCHIP, in alternate years
- VII. Environmental Public Health Tracking website, periodically
- VIII. APCP website, periodically
- IX. SENSOR bulletin, quarterly
- X. Massachusetts State Asthma Plan
- XI. Participation at state and national conferences, routinely
- XII. Metropolitan Area Planning Council website



**OBJECTIVE:** Increase the understanding and use of asthma data in Massachusetts.

**Lead Partner:** MDPH, MAPC

**Target:** Increase the number of partners utilizing MDPH asthma data products.

- I. Complete and track customized requests for asthma data by individuals and groups outside of the APCP.
- II. Ensure public access to up-to-date asthma surveillance data through MassCHIP, MDPH website, bulletins, fact sheets, reports, and presentations.
- III. Provide technical assistance to internal and external stakeholders using asthma data.
- IV. Promote the use of asthma data to inform policy around asthma prevention and control.





**OBJECTIVE:** Modify and expand asthma surveillance efforts based on needs of internal and external partners.

**Lead Partner:** Asthma Prevention and Control Program (APCP) at the Massachusetts Department of Public Health

**Supporting Partners:** Other programs at MDPH, MAAP

**Target:** Develop recommendations.

- I. Prepare and administer a survey tool every two years to internal and external partners.
- II. Identify and prioritize data gaps and limitations.
- III. Recommend areas for expansion or modification of asthma surveillance activities.



**OBJECTIVE:** Improve coordination of asthma surveillance activities among key MDPH programs.

**Lead Partner:** MDPH

**Target:** Meetings attended by key MDPH programs

- I. Continue to participate in intra- and inter-agency scientific workgroups that relate to asthma surveillance (e.g. DHCFP-DPH Research Group, BRFSS Workgroup, Internal Asthma Working Group, Environmental Public Health Tracking Workgroup).

## GOAL

# 2

## Improve Asthma Management for Massachusetts Residents



Asthma is a chronic disease that can have a significant impact on the quality of life of the person with asthma and his or her family. Uncontrolled asthma can result in, wheezing, coughing, shortness of breath, tiredness, stress, inability to work or go to school, and in some cases death. While we don't yet have a cure for asthma, asthma can be controlled. With proper asthma management that includes avoidance of asthma triggers, a person with asthma can lead a full and healthy life. This section focuses on the management of asthma in clinical and community settings.

Even though asthma is a complex disease to manage, controlling asthma in Massachusetts is an achievable goal. Advances in medical research have led to improved understanding of asthma and how it works as well as improved treatment options. The most recent asthma guidelines promulgated by the National Asthma Education and Prevention Program in 2007, the Expert Panel Report 3 (EPR-3): Guidelines for the Diagnosis and Management of Asthma, provide guidance to health professionals based on the most recent research on the appropriate diagnosis and management of asthma.

The EPR3 divides effective clinical asthma management into four components: 1) measures of assessment and monitoring; 2) education for a partnership in asthma care, 3) control of environmental factors and comorbid conditions that affect asthma, and 4) pharmacological therapy. The overall goal of therapy is to control asthma by reducing impairment and reducing risk.

### **Assessment and Monitoring**

The diagnosis of asthma includes medical history, physical examination, and pulmonary function testing. The EPR3 recommends that office-based physicians who care for asthma patients have access to spirometry for the diagnosis and monitoring of asthma. However, not all of Massachusetts office-based physicians have access to spirometry. Studies have shown that low income communities of color are often the last to benefit from medical technology.<sup>9</sup>

### **Education**

Education for the self-management of asthma is essential for asthma control. Asthma education should be integrated into all aspects of asthma care and at every opportunity. It requires repetition and

reinforcement at all levels of clinical care (e.g. ambulatory care, hospitals, specialty care) and in many community settings (e.g. schools, work sites, homes, pharmacies). EPR3 recommends that all patients receive a written asthma action plan that includes instructions for daily management and information on how to recognize and handle worsening symptoms. True asthma control requires an active partnership between the patient and family with the health professional(s).

### **Environment**

For successful management of asthma, the EPR3 states it is important “to identify and reduce exposures to relevant allergens and irritants and to control other factors that have been shown to increase asthma symptoms and/or precipitate asthma exacerbations.” It divides these factors into five categories: inhalant allergens, occupational exposures, irritants, comorbid conditions, and other factors (such as influenza). This objective focuses on the clinician’s role in identifying and reducing some of these factors.

### **Comprehensive Pharmacologic Therapy**

Asthma is a chronic disorder that has recurrent episodes and that may have differing levels of severity over time. “Pharmacologic therapy is used to prevent and control asthma symptoms, improve quality of life, reduce the frequency and severity of asthma exacerbations, and reverse air flow obstruction.” Asthma medications are categorized into two general classes: long-term control medications and quick-relief medications. Patients who have persistent asthma require both classes of medications.

This goal uses the EPR3 as the underpinning of all its objectives and activities. While most health care providers are aware of these national standards, many individuals in Massachusetts do not receive all of the recommended components of quality asthma care. Goal 2 seeks improved systems of care and outcomes for all individuals with asthma in Massachusetts.

**A** **OBJECTIVE:** Reduce disparities in asthma outcomes by focusing on priority populations who suffer disproportionately from higher than average hospitalizations.

**Lead Partners:** Asthma and Allergy Foundation of America – New England Chapter, Boston Asthma Centers Coalition, Boston Urban Asthma Coalition, Brockton Neighborhood Health Center, Boston Medical Center, Children’s Hospital Boston, Dorchester House Multi-Service Center, Floating Hospital for Children at Tufts Medical Center, Greater Brockton Asthma Coalition, Greater New Bedford Community Health Center, Greater Lawrence Family Health Center, High Street Health Center, Mason Square Health Center, Massachusetts Department of Public Health, Partners Asthma Center, Pioneer Valley Asthma Coalition, SSTAR

**Where We Are:** In 2006, the age-adjusted rate of hospital discharges due to asthma was 14.7 per 10,000 Massachusetts residents. From 2000 through 2006, the Massachusetts age-specific rates of hospitalization due to asthma were highest among children ages 0-4 years and adults ages 65+ years, young males (ages 0 – 11 years) and adult women (ages 18 years and older), and Blacks and Hispanics. The 7 geographic areas with statistically higher three-year average annual age-adjusted rates of hospitalization due to asthma are Community Health Network Area's (CHNA) of Boston, Brockton, Fall River, New Bedford, Springfield, Southern Worcester County and Worcester.

**Target 2014:** Reduce overall hospitalization rate while at the same time closing gaps between the priority populations in the state.

■ Reduce rate by 7% for priority populations.

**Background:** Black, Hispanics, very young children and older adults along with women have the highest hospitalization rates even though, with the exception of women, they do not have higher prevalence rates in the state. Research has linked disparities in asthma outcomes to differences in the quality of care and environmental exposures, among other factors. Strategies to tackle asthma disparities should involve both clinical and community interventions to address both clinical and socio-economic factors. This objective outlines a strategy to reduce the asthma hospitalization rate in the state by targeting resources to the communities with rates significantly above the state average and, within those communities, to the “priority” populations with rates above the state average - Black, Hispanics, children ages 0-4 years and adults ages 65+ years.

- I. In 2009 and 2012 (every three years), the Massachusetts Department of Public Health will identify specific “priority” populations that have significant disparate outcomes for asthma hospitalizations and observation stays (based on geographic area, age, gender, and race/ethnicity).
- II. During 2009 – 2014, the lead partners will promote best practices that are effective in addressing the priority populations and in reducing asthma disparities for this population.
  - a. During 2009 – 2014, the lead partners will identify and evaluate interventions that are effective in addressing the priority populations and in reducing asthma disparities for this population.
    - By 2010, the Asthma and Allergy Foundation of America – New England Chapter and the Massachusetts Department of Public Health will facilitate the development of a set of recommendations for public health and health care institutions to improve asthma outcomes for adults aged 65 and older.
  - b. During 2009 – 2014, the lead partners will disseminate best practices that are effective in addressing the priority populations

- and in reducing asthma disparities for this population.
- c. During 2009 – 2014, the lead partners will implement best practices that are effective in addressing the priority populations and in reducing asthma disparities for this population.
- During 2010 – 2014, the Massachusetts Department of Public Health will promote and support the set of recommendations for public health and health care institutions to improve asthma outcomes for adults aged 65 and older
  - During 2009 – 2014, the Massachusetts Department of Public Health will support through funding and technical assistance asthma self-management activities in the priority geographic areas to decrease asthma hospitalizations and reduce disparities in the priority populations.
- III. During 2009 – 2014, the lead partners will support asthma coalition activities in the priority geographic areas to increase local collaboration and local policies that will decrease asthma hospitalizations and reduce disparities in the priority populations.

**B** **OBJECTIVE:** Improve the standards of care in Massachusetts for the diagnosis and management of asthma.

**Lead Partners:** Boston Medical Center, Boston Public Health Commission, Brockton Neighborhood Health Center, Cambridge Health Alliance, Children’s Hospital Boston, Dorchester House Multi-Service Center, Greater Lawrence Family Health Center, Greater New Bedford Community Health Center, High Street Health Center, Mason Square Neighborhood Health Center, Massachusetts College of Emergency Physicians, Massachusetts Department of Public Health, Massachusetts Health Quality Partners, Mount Auburn Hospital – Department of Pediatrics, Neighborhood Health Plan, Partners Asthma Center, Stanley Street Treatment and Resources (SSTAR)

**Where We Are:** Currently the only measure of standard of care is the HEDIS for ambulatory care and the Joint Commission for emergency room and hospital care.

**Target 2014:** Develop or adopt additional measures or standards of care based on the data available in the All Claims data base.

**Background:** Data from the BRFSS Asthma Call Back Survey suggests that asthma is largely uncontrolled in Massachusetts.

In Massachusetts, for the years 2006 – 2007, 24.3% of adults with current asthma were classified as having well-controlled asthma while 75.7% adults were classified as having not well or very poorly controlled asthma. Twenty-four percent of adults with current asthma reported



that their asthma symptoms made it difficult to sleep in the past 30 days. In addition, 44.7% of adults with current asthma reported experiencing symptoms of asthma more than twice a week. At the same time, only 35.7% of adults with current asthma reported using inhaled corticosteroids in the past 3 months.

For those same years, 34.8% of Massachusetts children with current asthma were classified as having well-controlled asthma while 65.2% were classified as having not well or very poorly controlled asthma. Approximately seventeen percent of children with current asthma had asthma symptoms that made it difficult to sleep in the past 30 days. In addition, 40.5% of children with current asthma experienced symptoms of asthma at least once in the past 30 days. At the same time, only 29.7% of children with current asthma used inhaled corticosteroids in the past 3 months.<sup>10</sup>

The Healthcare Effectiveness Data and Information Set (HEDIS) is a tool used by more than 90 percent of America's health plans to measure performance on dimensions of care and service. Developed by the National Committee for Quality Assurance (NCQA), the asthma measure presents data on the number of patients with persistent asthma who have filled at least one prescription for a long-term asthma control medication in the past year. The limit of this measure is that it does not assess control. For most people who have persistent asthma, one controller medication a year is not sufficient and does not meet the EPR3 standards for proper pharmacology for patients with asthma. Therefore, this data has limited use in understanding the quality of care provided by physicians for asthma in Massachusetts. According to the Massachusetts Health Quality Partners, Massachusetts physicians perform above the National Committee for Quality Assurance 90th percentile for asthma care of children. However, they score below the 90th percentile for adults.<sup>11</sup> For MassHealth providers and health plans, no MassHealth plan exceeded 2006 national Medicaid 75th percentile (the national benchmark for Medicaid plans) with some plans meeting the benchmark and others falling significantly below the benchmark.

This objective focuses on controlling asthma in Massachusetts through improved assessment, monitoring, and pharmacologic therapy.

- I. By 2014, the partner will develop or adopt additional measures or standards of asthma care that draw on the data available in the All Claims data base.
  - a. By 2010, the Massachusetts Department of Public Health – Asthma Prevention and Control Program – will obtain access to the All Claims database.
  - b. By 2011, the Massachusetts Department of Public Health – Asthma Prevention and Control Program – will assess the all claims database for usability in measuring additional standards

- of care for the state.
  - c. By 2014, the lead partners will develop or adopt at least one additional measure of standard of care for the state on asthma and develop a system for tracking this measure over time through its asthma surveillance system.
- II. By 2014, the partners will improve the diagnosis and assessment of asthma in Massachusetts.
- a. During the year 2009 to 2014, the partners will provide training and technical support on the diagnosis and assessment of asthma for health care providers
  - b. By 2014, the partners will increase the number of ambulatory care practices that have access to spirometry on site
  - c. By 2014, the partners will increase the number of ambulatory care practices trained on the use of spirometry
- III. By 2014, the partners will improve the care coordination of patients with asthma between hospital and ambulatory care practices.
- a. By 2012, the partners will assess barriers to care coordination between hospitals and ambulatory care settings.
  - b. By 2013, the partners will develop strategies to overcome barriers to care coordination.
  - c. By 2014, the partner will begin to implement strategies to improve care coordination.
- IV. By 2014, the partners will increase asthma knowledge and competency of health care professionals, especially professional groups underserved by asthma training programs
- a. By 2010, the Massachusetts Department of Public Health will inventory asthma training programs available for health professionals in MA.
  - b. By 2010, the Massachusetts Department of Public Health will evaluate the training needs of health professionals
  - c. By 2011, the Massachusetts Department of Public Health and lead partners will develop a strategy to address training gaps and needs of health professionals, including but not limited to:
    - By 2014, the partners will increase the number of community health workers trained on asthma and environmental interventions by 20% from 2008 baseline.
    - By 2014, the partners will ensure that 100 medical interpreters receive standardized training on asthma to ensure consistent medical translation across the state for all people with asthma.
- V. From 2010 to 2014, the lead partners will create opportunities for health care providers and personnel working in asthma disease management programs and community settings to share knowledge, experiences, and best practices in asthma care.



**OBJECTIVE:** By 2014, the partners will increase the number of health care providers that address the environmental factors related to asthma.

**Lead Partners:** Children's Hospital Boston, Dorchester House Multi-Service Center, Mason Square Neighborhood Health Center, Brockton Neighborhood Health Center, Dorchester House Multi-Service Center, Greater Lawrence Family Health Center, High Street Health Center, Mason Square Health Center, Massachusetts Coalition for Occupational Safety and Health, Greater New Bedford Community Health Center, Massachusetts Department of Public Health, Neighborhood Health Plan, Stanley Street Treatment and Resources (SSTAR), Tobacco Free Mass, University of Massachusetts Lowell – Lowell Center for Sustainable Production

**Where We Are:** In Massachusetts for the years 2006 through 2007:

- 46.5% of adults with current asthma and 49.6% of children with current asthma were advised by a health professional to change aspects of home, school or work
- 48.9% of children and 50.6% of adults with current asthma received a flu vaccination,
- Of adults with current asthma who reported that their asthma was caused or made worse by either their current or previous job, only 26.8% reported ever telling or being told by a health professional that their asthma is work-related.

**Target 2014:** To meet or exceed the targets of Healthy People 2010 where applicable:

- Advised to change aspects of home, school or work: 60% for both adults and children
- Flu Vaccine: 60% for adults under age 65; 90% for adults ages 65 and older; 60% for children (no HP2010 target for children)
- Work-related Asthma: 40% of adults (no HP2010 target)

**Background:** Integrating environmental management of asthma into clinical care can be difficult. Health professionals don't always know how to address problems outside the medical management of the disease. Addressing exposures in the home, school or work environmental requires knowledge of community resources and state legal requirements that health professionals often lack. However, EPR3 recommends that the clinician evaluate exposure to environmental factors for, at least, those patients with persistent asthma.<sup>12</sup>

The Environmental Management of Pediatric Asthma, Guidelines for Health Care Providers, recommends that health professionals have the following core competencies: knowledge of environmental asthma triggers, identification of environmental triggers of asthma, environmental intervention and treatment, ability to counsel caregivers and pediatric

asthma patients on the reduction of environmental asthma triggers, effective communication and patient follow-up skills, and advocacy.<sup>13</sup>

For work related asthma, the American College of Chest Physicians Consensus Statement recommends that that work related asthma be considered for all adults with new-onset or worsening asthma and that a careful history be obtained in those cases. Those adults with occupational asthma (asthma caused by work) should be evaluated as a possible sentinel event requiring primary prevention to protect other workers.

For providers to manage the environmental aspects of asthma, they need to be aware of resources available in the community and have support to follow through with cases in which the environment plays a role in making asthma worse. Community health workers can play an essential role in addressing the housing environment. The Seattle Healthy Homes community health worker intervention, which focuses on reducing exposure to indoor asthma triggers, has been shown to have an impact on pediatric asthma disparities by reducing urgent care use and asthma symptom days and improving parent/caregiver quality of life.<sup>14</sup> Massachusetts has been exploring the potential role of community health workers in health care reform and the Massachusetts Department of Public Health plans to release a report to the legislature on this issue in 2009.

In addition, local and state government play a role in improving the environment by enforcing existing codes or laws that protect occupants of homes or buildings from harm.

- I. By 2014, the partners will increase provider's knowledge of the role of the home environment in controlling asthma and encourage providers to ask patients about the conditions of their home environment.
- II. By 2014, the partners will increase the number of home visits conducted at the request of a health care provider
- III. By 2014, the partners will increase the number of people with asthma who receive the influenza vaccination.
- IV. From 2009 – 2014, the lead partners will promote smoking cessation.
- V. By 2014, the partners will increase the number of adults with new onset or uncontrolled asthma who are asked about their work and occupational exposures.
  - a. From 2009 to 2014, the partners will educate health care providers about the 2008 American College of Chest Physicians Work-Related Asthma Consensus Statement
  - b. By 2009, the partners will develop a tool kit for health care providers to use for diagnosing and treating work-related asthma
  - c. By 2010, the partners will use the tool kit to improve the

diagnosis and treatment of work-related asthma for all adults with new onset asthma or uncontrolled asthma



**OBJECTIVE:** By 2014, the lead partners will improve the asthma self-management of Massachusetts residents with asthma to meet or exceed targets of Healthy People 2010.

**Lead Partners:** Asthma and Allergy Foundation of America – New England Chapter, Boston Medical Center, Boston Public Health Commission, Brockton Neighborhood Health Center, Cambridge Health Alliance, Children’s Hospital Boston, Dorchester House Multi-Service Center, Greater Lawrence Family Health Center, Greater New Bedford Community Health Center, Harvard Pilgrim Health Care, High Street Health Center, Mason Square Neighborhood Health Center, Massachusetts College of Emergency Physicians, Massachusetts Department of Public Health, Mount Auburn Hospital – Department of Pediatrics, Pioneer Valley Asthma Coalition, Stanley Street Treatment and Resources (SSTAR), WGBH

**Where We Are:** In Massachusetts for the years 2006 through 2007:

- 45.0% of children and 33.4% of adults with current asthma reported having ever received an asthma action plan,
- 84.2% of children and 65.5% of adults with current asthma had been taught how to recognize early signs of an asthma attack,
- 55.3% of children and 50.7% of adults with current asthma had been taught to use a peak flow meter, and
- 7.8% of children and 5.1% of adults with current asthma have taken a class on asthma management.

**Target 2014:** To meet or exceed the targets of Healthy People 2010 where applicable:

- Asthma Action Plan: 48% for adults (HP2010 target for children and adults) and 60% children (exceed HP2010 target)
- Recognize Signs and Symptoms: 90% of children and 70% of adults (no HP2010 target) OR taught to use peak flow meter: 60% for children and adults (no HP2010 target)
- Class on asthma management: 30% for children and adults

**Background:** Asthma self-management is essential to improving asthma outcomes. Both health professionals and community organizations play a role in supporting people with asthma and parents of children with asthma in helping them understand how to daily manage their chronic condition. Asthma self-management education should be integrated into all aspects of clinical care and reinforced in the community setting. The EPR3 recommends that asthma self-management education occur at the time of diagnosis and at each follow up visit, involve all members of the health care team, and introduce essential educational



messages and negotiate agreements about the goals of treatment, specific medications, and actions patients will take. All patients with asthma should receive a written asthma action plan that provides instructions on the daily management of asthma and how to recognize and handle worsening symptoms.

- I. By 2014, the partners will increase the number of people with asthma who receive asthma education in the clinic.
  - a. By 2014, the lead partners will increase the number clinics and hospitals that provide asthma education through funding and/or technical support
  - b. By 2014, the partners will increase the number of clinical practices that use asthma action plans as a quality indicator for asthma or require written asthma action plans as part of their electronic health record
  - c. From 2009 – 2014, the Massachusetts Department of Public Health will distribute free Asthma Action Plans to health care providers, school nurses, and community based-organizations
  - d. By 2012, the partners will develop and disseminate an electronic asthma action plan compatible with electronic health record systems that uses prompts and assists in the reassessment of asthma control.
- II. By 2014, the partners will increase the number of adults with asthma or parents of children with asthma who attend asthma education classes or chronic disease self-management programs.
  - a. From 2009 to 2014, the Massachusetts Department of Public Health will offer chronic disease self management classes in the priority regions.
  - b. From 2009 to 2014, the partners will increase the number of people with persistent asthma referred to self-management classes by ambulatory care practices.
- III. From 2009 to 2014, the lead partners will educate and provide outreach directly to families and children with asthma.
- IV. From 2009 to 2014, the lead partners will refine and implement a public media campaign, the “Kids with Asthma Can...” campaign, to increase asthma self management of children ages 3 to 8 by educating, empowering and motivating the families to better manage their children’s asthma and to advocate for improved environments and services in their community.
  - a. By 2010, the lead partners will develop a plan to refine the campaign based on evaluation results of the 2006 – 2007 Boston campaign.
  - b. By 2010, the lead partners will develop a funding strategy to support Boston campaign and expansion of the campaign to the targeted geographic areas of the plan.

- c. By 2011 or earlier, the lead partners will expand the Kids with Asthma Can Campaign! to the targeted geographic regions.
- d. By 2014, the lead partners will develop a plan to expand the Kids with Asthma Can Campaign! statewide.



**OBJECTIVE:** Increase sustainability of asthma care through coverage and reimbursement for a comprehensive management approach to asthma.

**Lead Partners:** Asthma Regional Council of New England, Boston Medical Center, Boston Urban Asthma Coalition, Cambridge Public Health Department/Cambridge Health Alliance, Children's Hospital Boston, Mount Auburn Hospital – Department of Pediatrics, University of Massachusetts Lowell – Lowell Center for Sustainable Production

**Where We Are:** Inconsistent coverage of EPR3 recommendation treatment, education, medications and devices.

**Target 2014:** More comprehensive coverage.

**Background:** Many Massachusetts residents cannot access the needed health services, medications and devices need to manage their disease. Among Massachusetts adults with current asthma, 11.6% reported that cost was a barrier to care in the years from 2006 through 2007. Of those that reported cost was a barrier to care, 3.7% had well-controlled asthma, 53.5% had not well controlled asthma, and 42.7% had very poorly controlled asthma. Massachusetts is the first state to offer universal health care access.

On April 12, 2006, the legislature passed the landmark Health Care Reform Act to provide increased access to health care for Massachusetts residents. Based on the concept of shared responsibility between people, business and government; it requires all persons to purchase health coverage if they can afford it; it requires businesses that do not provide coverage for employees, to help pay for it; and it requires the government to provide subsidies to ensure affordability.

However, increased access does not always result in coverage of the recommended asthma services. Currently, health plans – both public and private – have varied reimbursement policies for asthma services, medications and devices. Not all the recommended services and devices from EPR3 are covered. Tiered drug formularies often put controller medications in a higher tier resulting in costly co-pays for persons with asthma.

At the same time, few health payers routinely reimburse for asthma education sessions and home-based services shown to be cost-effective in the research literature. Those that do have found that health care

providers are unaware of coverage provided by insurers and so do not refer patients or bill for the full range of services available such as environmental interventions.

This objective focuses on improving access to the services, medications and devices recommended in EPR3 through public awareness and policy change.

- I. From 2009 to 2014, the lead partners will increase the voluntary coverage of asthma services, medications and equipment consistent with the national asthma guidelines (EPR3) by public and private insurers.
  - a. From 2009 to 2014, the Asthma Regional Council and University of Massachusetts – Lowell will promote the *What the Health Sector needs to implement Best Practices for Asthma: A Perspective from Providers* (Massachusetts Asthma Provider Consensus Statement) to private and public insurers
  - b. During 2009 to 2010, the Massachusetts Department of Public Health will collaborate with the Asthma Regional Council and other New England Asthma Programs to develop and/or promote a model benefits package that is consistent with the EPR3.
  - c. From 2009 – 2014, the lead partners will promote voluntary coverage of in-home environmental assessments, education and interventions
- II. From 2009 to 2014, the lead partners will promote policies that increase coverage for asthma services, medications and equipment consistent with the new national asthma guidelines (EPR3).
  - a. In 2009, the lead partners will work state policy makers to promote policies that increase coverage.
- III. From 2009 – 2011, Tobacco Free Mass will advocate for comprehensive tobacco cessation coverage in all Commonwealth Care plans.
- IV. From 2009 to 2014, the lead partners will advocate for increased resources for tobacco cessation by increasing the state tobacco tax.
- V. From 2009 to 2014, the lead partners will increase the demand for asthma services, medications and devices in insurance policies by major purchasers of health insurance
  - a. By 2010, the Asthma Regional Council of New England and U. Mass. Lowell will develop an Asthma Business Case for Employers.
  - b. From 2010 to 2014, the lead partners will promote the Asthma Business Case for Employers in collaboration with New England Asthma Programs.

- VI. From 2009 – 2014, the Massachusetts Department of Public Health will increase billing by community health centers for covered asthma services, medications and devices.
- a. By 2010, the Massachusetts Department of Public Health will inventory covered asthma services, medications and devices of MassHealth and Managed Care Medicaid insurers.
  - b. From 2010 to 2014, the Massachusetts Department of Public Health will promote increase billing for covered services by health centers.

**F** **OBJECTIVE:** Improve the integration of care outside the health care setting with schools and child care settings.

**Lead Partners:** American Lung Association, Asthma and Allergy Foundation of America – New England Chapter, Cambridge Health Alliance, Children’s Hospital Boston, Floating Hospital for Children at Tufts Medical Center, Massachusetts Department of Early Education and Care, Massachusetts Department of Public Health, Massachusetts Asthma Advocacy Partnership, Massachusetts School Nurse Organization, Massachusetts School Nurse Research Network, Mount Auburn Hospital – Department of Pediatrics, Square One

**Where We Are:**

- *Schools:* During the FY08 school year, 96 districts reported receiving Asthma Action Plans for 4,446 students. At the same time, school nurses reported 54,531 students with asthma. Thus, only approximately 8% of students with asthma have an asthma action plan on file with their school nurse.
- *Child Care Settings and Head Starts:* The Massachusetts Department of Early Education and Care proposed regulations require an individualized health plan for all children with a chronic illness. There is currently no data on the number of children with asthma in child care or Head Start settings.

**Target 2014:** Increase to 20% the number of children with an asthma action plan on file with their school nurse.

Develop system for tracking number of children with asthma who have individualized health plans in the child care or Head Start settings.

**Background:** Uncontrolled asthma can result in school absenteeism and missed work for a parent of a child with asthma. Asthma is the leading cause of school absenteeism nationwide. In Massachusetts, more than one in three children (37.8%) missed one or more days of schools or daycare in a twelve month period. Poorly controlled asthma can interfere with a child’s development and learning. A critical component of asthma management in schools and child care settings is ensuring

each child with asthma has a written asthma action plan. An estimated 159,600 of Massachusetts children have current asthma (10.3%). Yet only 4,446 have asthma action plans on file with their school or day care. As mentioned in an earlier objective, the asthma action plan is part of asthma self-management. The plan contains written instructions for the patient or caretaker/parent from the clinician that includes instructions for daily management and recognizing and handling worsening asthma. It is an important tool of communication between the health care clinician and the school nurse or child care setting.

- I. From 2009 – 2013, the lead partners will train new school nurses and continue training for experienced nurses on asthma management and control.
- II. During the years of 2009 – 2014, the lead partners will advocate to increase the nurse to student ratio to meet Massachusetts Department of Public Health's Essential School Health recommended nurse to student ratio to increase access to nurse support in the schools.
- III. During the years of 2009 – 2014, the lead partners will improve the linkages between school nurses and health care providers.
  - a. By 2014, the lead partners will identify and evaluation interventions that improve the communication between school nurse, pediatrician and student with asthma and will disseminate findings
  - b. During the years 2009 to 2014, the lead partners will promote improved linkages between health care providers and school nurses.
- IV. By 2014, the lead partners will increase the capacity of early education and child care settings to manage asthma
  - a. By 2009, the lead partners will develop guidance documents that support early education and child care settings management of asthma
  - b. By 2010, the lead partners will assess the training needs of early education and child care sites.
  - c. From 2009 – 2014, the lead partners will increase the number of child care sites that have received training in reducing environmental triggers of asthma and improving care for children with asthma.



## Reduce Exposure to Environmental Factors That Cause and/or Exacerbate Asthma in the Commonwealth



Exposure to certain indoor and outdoor environmental factors can make asthma worse and in some cases, cause asthma. Pollutants, chemicals, and allergens can all affect a person with asthma depending on the person's sensitivities and the type of exposure. Less is known about the role of environmental exposure and the development of asthma although research in this field is growing. Research has found that tobacco smoke, dust mites and certain occupational exposures can cause asthma for young children and adult workers, respectively. These exposures alone, however, do not explain the steep increase in asthma prevalence that occurred in the 1980s, though they have likely played a role. More research is needed to better understand the role of environmental exposures in causing the development of asthma.

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### Outdoor Environmental Pollutants

Epidemiological studies have reported significant positive associations between ambient air pollutants, notably ozone and particulate matter, and increased respiratory-related hospital admissions, emergency department and other medical visits, increased incidence of asthma and other respiratory symptoms, and decrements in pulmonary function.<sup>15</sup> The primary pollutants associated with triggering asthma attacks are: ground level ozone, sulfur dioxide, particulate matter, nitrogen oxides. Recent studies also suggest that some pollutants – ozone and particulate matter – are associated with the development of asthma. For example, a study in California for the first time linked the onset of asthma to exposure to elevated ozone levels in exercising children.<sup>16</sup>

Long-term studies of children's health conducted in California have demonstrated that particle pollution may significantly reduce lung function growth in children.<sup>17</sup> In addition to studies linking air pollution in general to asthma and respiratory symptoms, health studies have identified individual pollutants that may exacerbate respiratory symptoms, particularly in susceptible populations.

- Oxides of nitrogen ( $\text{NO}_x$ ) is the general term for a mixture of highly reactive gases that contain nitrogen and oxygen in varying amounts (e.g., nitric oxide [ $\text{NO}$ ] and nitrogen dioxide [ $\text{NO}_2$ ]) that affect the respiratory system. Symptoms include wheezing, cough, reduced lung function, and increased airway responsiveness in normal and

asthmatic individuals. NO<sub>x</sub> may also be a co-factor in the tissue damage associated with exposure to ambient levels of ozone.

- Sulfur dioxide (SO<sub>2</sub>) is a direct respiratory irritant and contributes to the formation of sulfate and sulfuric acid absorbed onto particulate matter.
- Volatile organic compounds (VOCs) are also linked to respiratory morbidity, particularly respiratory irritants including acrolein and several aldehyde compounds. These compounds may interact within the complex mixture of ambient pollutants to exacerbate asthma and asthma-related symptoms. For example, VOCs contribute to the formation of ozone and airborne secondary particles. Ozone is formed in the atmosphere from the reaction of combustion by-products - NO<sub>x</sub>, VOCs and ultraviolet light.

Research efforts are focused on the fact that asthma is a multifactorial lung disease that is often associated with familial, allergenic, socio-economic, psychological, and environmental factors. Three important findings guiding research and policy efforts to address the asthma morbidity and mortality are: (1) pollutants from fuel combustion including gasoline, diesel and coal, may play a greater role in inducing and aggravating asthma; (2) susceptible subpopulations tend to have higher risk of symptoms from air pollution exposure and (3) intervention programs that reduce air pollution are associated with a decline in respiratory symptoms. Of particular importance is the finding of several recent studies that have shown a correlation between proximity to traffic and childhood asthma.<sup>18</sup> (McConnell et al, 2006; Jerrett et al, 2008)

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## Indoor Environmental Exposures

The Institute of Medicine and the American College of Chest Physicians have released documents that review the literature on asthma and indoor environmental exposures. The Institute of Medicine's (IOM) 2000 report *Clearing the Air: Asthma and Indoor Air Exposures* found sufficient evidence to conclude there is a causal relationship between exposures to the allergens produced by cats, cockroaches and house dust mites and asthma exacerbations in sensitized individuals and environmental tobacco smoke and asthma exacerbations in preschool aged children. Other exposures that were associated with asthma were: allergens produced by dogs, domestic birds, fungi and molds, high levels of nitrogen oxides, environmental tobacco smoke for all ages, formaldehyde, and fragrances.

For the development of asthma, the IOM found sufficient evidence of a causal relationship between exposure to house dust mites and the development of asthma in susceptible children. In addition, it found that there was sufficient evidence to conclude an association between environmental tobacco smoke and the development of asthma in younger children. It also found suggestive evidence between the

exposure to cockroach allergen and the development of asthma in pre-school aged children.

In 2004, IOM released a second housing-related report entitled *Damp Indoor Spaces and Health*. This report found sufficient evidence of an association between asthma symptoms in sensitized individuals and exposure to damp indoor environments. There was also evidence of the same link between those exposures and wheeze, cough and upper respiratory tract symptoms.

The American College of Chest Physicians released a consensus statement entitled *Diagnosis and Management of Work-Related Asthma* in 2008 (ACCP Consensus Statement).<sup>19</sup> The American College of Chest Physicians estimates that approximately 25% of adult asthma is likely related to work. The role of occupational sensitizers and irritants as causing asthma is recognized with reference to over 100 distinct causes. The work environment can also exacerbate asthma with the most common causes being mineral and inorganic dusts, chemicals, paints, temperature extremes, cleaning agents, second-hand cigarette smoke, and poor indoor air quality.

The ACCP Consensus Statement recommends better control of exposures for all people with work-related asthma also. However, for individuals with sensitizer-induced occupational asthma, it is recommended that the person be removed from further exposure. In addition, the ACCP Consensus Statement recommends implementing primary prevention strategies for workers who are potentially exposed to sensitizers or uncontrolled levels of irritants.

A number of the chemicals known to be capable of causing asthma in the workplace are also found in non-occupational settings. Educational information about household products that contain asthmagens (for example formaldehyde, isocyanates and other volatile organic compounds) can help consumers avoid exposures.

The National Heart Lung and Blood Institute's Expert Panel Report 3: *Guidelines for the Diagnosis and Management of Asthma* (EPR3) recommends reducing the exposure of anyone with asthma to asthma allergens, irritants and environmental tobacco smoke. Recent studies on the best approach to eliminating or reducing these asthma triggers has found that multi-faceted interventions result in better outcomes than those targeting only one environmental agent (such as dust mites). The EPR3 recommends a multifaceted, comprehensive approach to reducing asthma exposures as "individual steps alone are generally ineffective."

There exists no easy environmental solution to improving asthma. Instead, a coordinated approach that targets multiple environmental factors is needed. This goal reflects a multi-faceted approach to reducing exposure to environmental factors associated with asthma.



**OBJECTIVE:** Reduce exposure to specific outdoor air pollutants linked to asthma development and worsening asthma symptoms by 2014.

**Lead Partners:** American Lung Association, Asthma and Allergy Foundation of America – New England Chapter, Clean Water Action, Massachusetts Asthma Advocacy Partnership, Massachusetts Department of Environmental Protection, Massachusetts Department of Public Health, Metropolitan Area Planning Council, Old Colony Planning Council, Pioneer Valley Planning Commission, University of Massachusetts Lowell – Lowell Center for Sustainable Production

**Where We Are:** While research suggests that there is no threshold for cardiovascular and respiratory mortality associated with particulate matter exposure, the plan uses established federal standards from the Clean Air Act.

In Massachusetts for the year 2007:

- Nitrogen Dioxide: in attainment with the National Ambient Air Quality Standards (NAAQS)
- Sulfur Dioxide: in attainment with NAAQS
- Particulate Matter: in attainment with NAAQS (150 ug/m<sup>3</sup> [annual] for PM<sub>10</sub>, 15 ug/m<sup>3</sup> [annual] and 35 ug/m<sup>3</sup> [24-hour] for PM<sub>2.5</sub>).
- Ozone: non-attainment with NAAQS (0.8 ppm [1997 standard] and 0.075 ppm [more stringent 2008 standard])

**Target 2014:** In compliance with 1997 ozone standard (0.08 ppm) by 2010 and by 2014 for the new ozone standard (0.075 ppm) by law. Maintain attainment for nitrogen dioxide, sulfur dioxide and particulate matter.

**Background:** State and federal law provide some support for this objective. Idling reduction is a low- or no-cost option for addressing vehicle emissions. Massachusetts law and Massachusetts Department of Environmental Protection (MassDEP) regulation prohibit unnecessary idling in excess of five minutes.<sup>20</sup> The MassDEP has invested resources to not only enforce its regulation, but also to educate vehicle owners, municipalities, and businesses about the benefits of reducing vehicle idling. In addition, Massachusetts has recently adopted a 2009 law that specifically addresses idling on school grounds.<sup>21</sup> The Registrar of Motor Vehicles, in consultation with other departments, shall develop regulations to implement this new legal requirement.

The retrofit of selected diesel vehicles and engines in Massachusetts is a cornerstone of MassCleanDiesel, a MassDEP strategy to reduce diesel emissions in the Commonwealth. Since the inception of the diesel retrofit requirements adopted by the Central Artery/Tunnel project in 1998, numerous diesel retrofit projects have been undertaken to reduce diesel emissions from certain sectors of the legacy fleet. Using

available funding through the American Recovery and Reinvestment Act, Diesel Emission Reduction Act (DERA), Congestion Mitigation and Air Quality (CMAQ), and enforcement settlement funding, Mass-DEP is providing resources and technical support to cities, towns, and other state agencies to retrofit school buses, waste collection vehicles, non-road municipal vehicles, construction equipment, regional transit authority buses, and diesel commuter locomotives.

A study conducted by the Massachusetts Department of Public Health's Bureau of Environmental Health found that Children with asthma were statistically significantly more likely to live in close proximity to a higher volume of traffic than children without asthma in the Merrimack Valley area of Massachusetts.<sup>22</sup> This study highlights that certain populations in Massachusetts suffer disproportionately from the effects of outdoor environmental pollutants.

The Bureau of Environmental Health at MDPH also has the Environmental Public Health Tracking Program. It provides researchers and the public with health, air quality and industrial sources data with GIS capabilities.

Lastly, BEH is studying the impact of activities at Logan Airport and environmental exposures. Since 2005, BEH has researched the relationship through a telephone survey and state-of-the-art air modeling. In the future and pending appropriation, BEH will link the health phone survey to the air dispersion modeling to assess the environmental health impacts of Logan airport on the surrounding communities.

Attention to the disproportionate environmental burden suffered by lower income people and communities of color is important and linked to poor asthma outcomes. The Commonwealth's Executive Office of Energy and Environmental Affairs (EEA) established an Environmental Justice Policy to help address the disproportionate share of environmental burdens experienced by lower-income people and communities of color who, at the same time, often lack environmental assets in their neighborhoods. There is significant overlap between the environmental justice communities established by EEA and the priority geographic communities established by the Department of Public Health's Asthma Prevention and Control Program. This objective focuses activities in those communities that are priorities for both agencies.

- I. By 2014, the lead partners will decrease the pollutants caused by vehicle idling.
  - a. During the years 2009 - 2014, the lead partners will promote through education and/or advocacy policies that reduce or eliminate all vehicles idling, building off the existing anti-idling legislation.
  - b. During the years 2009 - 2014, the lead partners will enforce idling reduction requirements in schools and other places



with targeted emphasis in communities where vulnerable populations are found, consistent with lead partners' on-going enforcement compliance and initiatives.

- c. During 2009 – 2014, the lead partners will coordinate, develop, and deliver outreach messages to raise awareness and provide education on the impacts to the environment and public health associated with idling vehicles. Public outreach will include driver awareness, driver training, and messaging.
- II. By 2014, reduce pollution caused by diesel transportation sources.
    - a. During 2009 - 2014 and beyond, the lead partners will promote policies and programs that will encourage the retrofit of eligible diesel vehicle to reduce diesel pollution.
    - b. During 2011 - 2014, the lead partners will explore the feasibility of retrofitting other fleets, subject to availability of funding and technology.
    - c. During the years 2009 to 2015, the lead partners will advocate for policies that reduce diesel pollution for the entire Commonwealth.
  - III. During 2009 - 2014, the lead partners will continue to implement and develop potential strategies to reduce air pollution from mobile and stationary sources in Massachusetts.
    - a. By 2014, the lead partner will explore strategies to achieve the ozone standard (the 1997 0.08 ppm 8-hour national standard and the more stringent 2008 0.075 ppm 8-hour national standard) and maintain the PM standards (150  $\mu\text{g}/\text{m}^3$  [annual] for  $\text{PM}_{10}$ , 15  $\mu\text{g}/\text{m}^3$  [annual] and 35  $\mu\text{g}/\text{m}^3$  [24-hour] for  $\text{PM}_{2.5}$ ).
    - b. During 2009-2014, the lead partner will ensure that new vehicles delivered for sale to Massachusetts are as clean as possible. Through MassDEP's adoption of California standards under the Massachusetts Low Emission Vehicle (LEV) Program, all vehicles will meet California emission standards, which are more stringent than federal standards. In addition, the lead partner will promote hybrid vehicles and other advanced clean vehicle technologies.
    - c. During 2009 – 2014, the lead partner will implement MassDEP's Inspection and Maintenance (IM) Program that requires light- and medium-duty vehicles with on-board diagnostic equipment be tested every year (passenger vehicles and trucks). In addition, the opacity cutpoints for testing heavy duty diesel vehicles will be lowered. The IM program will identify vehicles emitting excess pollution and require those vehicles to be repaired.
  - IV. During 2009 – 2014, the lead partners will make environmental and public health data accessible to the public
    - a. By 2009, the lead partner will make real time air quality data available to the public with alerts and predictions using the Commonwealth's air monitoring network.
    - b. By 2009, the lead partners will make public health, air quality,

and industrial sources data available to the public through maps and websites.

- V. During 2009 – 2014, the lead partners will use the environmental and public health data to inform community planning.
- VI. By 2010, the lead partners will create an outdoor air quality committee to promote policies and to reduce exposures to air pollutants.
  - a. By 2010, the lead partners will form the Massachusetts Asthma Advocacy Partnership that will focus on promoting policies that help reduce those exposures to air pollutants using available data and evidence.
- VII. By 2014, the MDPH Bureau of Environmental Health will assess the impact of Logan Airport activities on the health of residents in the surrounding communities, if state funding is restored.

**B** **OBJECTIVE:** Reduce Exposures to Factors that Cause and/or Exacerbate Asthma in School, Child Care and Child Recreational Settings.

**Lead Partners:** American Lung Association, Asthma and Allergy Foundation of America – New England Chapter, Boston Urban Asthma Coalition, Clean Water Action, Environmental Protection Agency – Region One, Massachusetts Coalition for Occupational Safety and Health, Massachusetts Department of Early Education and Care, Massachusetts Department of Elementary and Secondary Education, Massachusetts Department of Public Health, Massachusetts School Nurses Organization, Pioneer Valley Asthma Coalition, Springfield Department of Parks Buildings and Recreation Management, Square One, University of Massachusetts Lowell – Lowell Center for Sustainable Production

**Where We Are:** In 2006, 68% of middle and high school principals said that their school implements “a regular review of the school physical environment to determine potential triggers for asthma.” Of those that do a review, 18.5% (or 12.5% of total schools) said they used Tools for Schools and 40.1% (or 27.2% of total schools) said they used the Massachusetts Healthy Schools Checklist. Currently, there is no system for tracking the physical environment in child care settings or elementary schools.

**Target 2014:** Increase by 20% the number of schools that use either Tools for Schools or the Massachusetts Healthy Schools Checklist. Develop tools for to assist child care settings for addressing the environmental exposures that make asthma worse.

**Background:** This objective focuses on improving the environments in school and child care settings so that they are not barriers to the learning

and development of children. As the state pursues academic excellence, the role of the school environment in enhancing or preventing student performance should not be ignored. The school and child care environment can make asthma worse by exposing children to asthma triggers and irritants such as mold, pests or toxic cleaning products. Nationally, inequities in health conditions, such as asthma, may account for as much as a quarter of the racial gap in school readiness.<sup>23</sup> Asthma is the leading cause of school absenteeism nationwide.<sup>24</sup> In Massachusetts, more than one in three students with current asthma (37.8%) missed school or daycare because of their asthma at least once in a twelve month period (during 2006 and 2007).<sup>25</sup> The environment also affects the health of school and child care staff. Elementary and secondary education staff results in 10.4% of all work-related asthma cases reported to MDPH. Work-related asthma is defined as asthma that is caused or made worse by the work environment. Thus the schools environment can not only affect the ability of students with asthma to learn but also the ability of teachers to teach.

Massachusetts has some of the oldest schools in the country. More than 950,000 children and about 70,000 teachers spend a significant portion of their days in more than 1,800 public and private school buildings in Massachusetts.<sup>26</sup> The Environmental Protection Agency estimates one third of U.S. schools have buildings in need of extensive repair or replacement. The leading air quality problems found in schools that relate to asthma are: pest problems, poor ventilation, mold and moisture, and chemical exposures. Massachusetts has invested significant resources in school buildings over the 60 years, however more work is needed. Of the 1,817 surveyed by the School Building Administration, 47% were built before 1960, 21% were built between 1960 and 1969, and 32% were built since 1969.<sup>27</sup>

Recently, MDPH has been able to link the school environment to asthma prevalence. As part of the Environmental Public Health Tracking Program, MDPH has been conducting systematic indoor air quality testing and pediatric asthma surveillance in schools across Massachusetts. In 2006, MDPH tested 106 Massachusetts schools for environmental health exposures such as carbon dioxide and mold. Of the 106 schools tested, 71 schools had visible mold or moisture problems in at least one classroom or library. MDPH analysis found a statistically significant association between the presence of moisture problems and the prevalence of childhood asthma in the schools tested.

Since 1997, the Bureau of Environmental Health at MDPH has regulated the air quality inside indoor skating rinks to protect the health of children and other occupants. Massachusetts is one of three states with indoor air quality regulations for ice rink surfaces. It has 158 ice rink surfaces that are permitted and inspected annually by local boards of health to ensure the levels of carbon monoxide or nitrogen dioxide remain at safe levels. Recently, all state Division of Conservation and Recreation rinks

renewed contract requirements to include the purchase of electric equipment, thus significantly reducing the indoor air pollution at those rinks.

Child care and Head Start settings currently have little supports for improving indoor air quality. There are no guidance documents for early education and child care settings from the state on how to assess, monitor and improve the indoor environment. In addition, very little is known about what air quality issues confront these settings that support the youngest of Massachusetts residents. This objective focuses on providing guidance to early education and child care settings and better understanding the environmental issues in these sites.

This finding underscores the need for policy changes that reduce exposure to mold and other asthma triggers in schools and child care settings. Poor school environments not only impact the health of school and child care staff and students, but it also significantly interferes with learning. This objective outlines policy and education activities to reduce exposures for both children and adults who learn, grow, teach and care take in school buildings and child care settings.

- I. By 2010, the lead partners will increase the capacity of local communities to improve school environments through the creation of a taskforce that focuses on training of districts and community groups, air quality monitoring in the schools, technical assistance to and collaboration with local districts and community groups.
  - a. By 2010, the lead partners will develop membership and guiding principles for the taskforce with establish regular meeting times.
  - b. By 2014, the taskforce will develop and implement a strategy to increase the capacity of local communities to improve school environment through training, monitoring, technical assistance and collaboration.
  - c. Determine the impact of the environmental triggers on the health of students, faculty and staff in schools. Disseminate the results.
  - d. Identify what can be done to reduce exposure to these environmental triggers.
- II. By 2014, the lead partners will increase the capacity of school staff to improve the school environment.
  - a. From 2009 to 2014, the lead partners will train school nurses on asthma and environmental issues in the schools.
  - b. From 2009 to 2014, the lead partners will train school staff on how to assess the school environment for environmental triggers, e.g., “Tools for Schools” or “MA Healthy Schools Checklist.”
  - c. From 2009 to 2014, the lead partners will train school staff members on how to summarize findings from assessment and identify the environmental triggers that cause or exacerbate asthma among students, faculty and staff in schools. Examples may include pest problems, poor ventilation, mold and moisture, and chemical

d. Determine the impact of the environmental triggers on the health of students, faculty and staff in schools. Disseminate the results.

- a. By 2010, the lead partners will determine which schools already have environmental strategies in their wellness policies, what they are, and if they are being implemented.
- b. By 2010, the lead partners will develop sample language to include in wellness policies that include environmental assessments and environmental strategies to share with school districts.
- c. From 2009 – 2014, the lead partners will outreach to # school districts to raise awareness of environmental factors associated with asthma and promote model wellness policy.

- a. By 2010, the lead partners will conduct a pilot survey on the impact of green cleaners on the health of school staff and students and will disseminate the results across the state.
- b. From 2009 – 2014, the lead partners will advocate for policies that promote statewide or local use of green cleaners in schools and child care settings.

- a. By 2010, the lead partners will assess key environmental exposures in child care settings and Head Starts, describe how they impact child health and identify strategies for reducing or eliminating the exposures.
- b. By 2009, the lead partners will draft model environmental policies for child care settings.
- c. From 2009 to 2014, the lead partners will disseminate the model environmental policies to child care settings.
- d. By 2010, the lead partners will assess the training needs of early education and child care sites.
- e. From 2010 – 2014, the lead partners will train child care sites and Head Starts on the asthma and the environment.
- f. By 2014, the lead partners will evaluate the impact of increase of indoor air quality policies on health outcomes for children with asthma.

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of coalitions and community organizations to work for improved environmental conditions in their schools by sharing successful strategies and providing technical support.

- a. From 2009 to 2014, the lead partners will offer trainings on an annual basis focused on successful community strategies to improving school environments.
- b. From 2009 to 2014, the lead partners will provide technical assistance to coalitions and community groups across the state seeking to improve the conditions in their school district.

VII. From 2009 to 2014, the Bureau of Environmental Health at MDPH will continue to enforce and conduct random and unannounced inspections at ice rinks to ensure compliance with state regulations on indoor air quality.

VIII. By 2014, the BEH at MDPH will review other venues where children and adults are exposed to combustible power equipment that pose a threat to health to introduce regulations to reduce exposure, if needed.



#### OBJECTIVE: Reduce Exposures to Factors that Cause and/or Exacerbate Asthma in Home Setting.

**Lead Partners:** Asthma Regional Council of New England, Boston Public Health Commission, Boston University – Center for Healthy Homes and School of Public Health Practice Programs, Massachusetts Department of Public Health, The Medical Foundation, University of Massachusetts Lowell – Center for Family, Work and Community and Lowell Center for Sustainable Production

**Where We Are:** In Massachusetts for the years 2006 to 2007, according to the MA BRFSS Asthma Call Back, Massachusetts residents with current asthma reported the following conditions or behaviors in their homes:

- Mold inside the home in the past 30 days: 16.4% adults, 8.7% children
- Mice or rats inside the home in the past 30 days: 7.9% adults, 11% children
- Cockroaches inside the home in the past 30 days: 3.7% adults, 1.4% children
- Carpeting or rugs inside the bedroom: 58.5% adults, 56.3%
- Smoking inside the home in the past week: 18.2% adults; 3.5% children
- Used a mattress cover and/or pillow cover: 32.6 adults; 41.8% children (pillow 29.4%; 37.6% children)

**Target 2014:** Reduce exposures to environmental factors in the home that exacerbate asthma by 30%. Every effort will be made to exceed these targets. They do not reflect an acceptable level of exposure but an estimate of the realistic impact of the activities under this objective.

- Mold: 11.5% adults, 6.1% children
- Mice/rats: 5.5% adults, 7.7% children
- Cockroaches: 2.6% adults, 1% children
- Carpeting or rugs in the bedroom: 41% adults, 39.4% children
- Smoking inside the home: 12.7% adults, 2.5% children

**Background:** The U.S. Environmental Protection Agency (EPA) studies show that levels of air pollution inside the home are often two to five times higher than outdoor levels. In addition, the Environmental Protection Agency estimates that children spend on average 90% of their time indoors. Children are particularly vulnerable as their bodies take in proportionately greater amounts of environmental toxins than adults.

New England has some of the oldest and most decrepit housing in the country. New England has more than twice the national rate of homes built before 1940. The Department of Housing and Urban Development that in 2005, approximately 6.2 million homes in the U.S. had severe to moderate physical problems. However, the New England percentage of homes with severe physical problems is twice that of the U.S. In 2007, 5.9% of rental housing and 2.2% of owner-occupied housing in metropolitan areas had severe physical problems (compared with 3.7% and 1.2% for the U.S) and 3.2% of rental housing and 1.2% of owner occupied housing in non-metropolitan areas had severe physical problems (there is no national average for rental, national average for non-metropolitan owner occupied is 0.8%). In 2007, New England had higher rates of: signs of mice, leaks from outside, lacking complete plumbing, roofing, siding and foundation problems.<sup>28</sup>

A survey by the Public Health Institute funded by the Massachusetts Department of Public Health's Tobacco Control Program of 300 owners of residential properties in three target geographic areas, Greater Boston and North Hampton/Amherst, found that 37% had a smoke-free rule in their rental housing. Of those who had implemented smoke-free rules, 99% felt it was a good decision. Due to small response numbers, this data is a good indicator of landlord policy across the state but not representative. This survey will be completed in 2012 or 2013.

Healthy People 2010 has several targets related to asthma and the home environment. This objective attempts to come close to the Healthy People 2010 targets. One Healthy People 2010 goal is to reduce exposure to dust mite and cockroach allergen by 20% (HP2010 8 -16). Another Healthy People 2010 goal is to reduce substandard housing by 52% (HP2010 8 -23). To truly improve housing environments in Massachusetts for people with asthma, many state agencies and community groups will need to work together. This objective requires a coordinated effort between public health, housing, energy efficiency, and development representatives to succeed.

- I. By 2014, the lead partners will increase to 10% the number of multi-unit properties, including section 8 properties, with a

smoke-free rule, in target geographic areas.

- a. By 2011, the lead partners will gather information on how other states have promoted smoke-free housing incentives.
  - b. By 2011, the lead partners will develop and promote the business case for providing smoke-free housing incentives.
  - c. By 2014, the lead partners will increase to 70% the number of private landlords who believe that smoke-free rules are legal within target geographic areas through training and technical assistance.
  - d. Increase awareness among low-income families of secondary smoke hazards.
- II. By 2014, the lead partners will build capacity of at least 5 local boards of health to address the environmental factors that influence asthma in their communities.
- a. From 2009 – 2014, the lead partners will provide local boards of health with background data on asthma in their community, tools for assessing local asthma and home environmental needs, and strategies for tracking progress over time.
  - b. From 2009 to 2014, the lead partners will advocate for local and state policies that reduce exposures to environmental triggers and irritants in the home.
  - c. From 2009 to 2014, the lead partners will train local boards of health on healthy homes.
- III. By 2011, the lead partners will enhance regulations and guidance documents that focus on reducing exposures to asthma triggers and irritants in the home
- a. From 2009 to 2010, the lead partners will explore changes to the State Sanitary Code and the Children and Families Protection Act to reduce exposure to pests, mold and mildew, indoor air pollution and toxic chemicals by reviewing other state codes, soliciting feedback from state partners, and reviewing the recent literature.
  - b. From 2010 to 2011, the lead partners will pass – as feasible – new Sanitary Code regulations and amendments to the Children and Families Protection Act on asthma triggers after public hearing and comments.
  - c. From 2012 to 2014, the lead partners will develop guidance documents for home owners on strategies to reduce exposure to asthma triggers and irritants in the home.
  - d. By 2013, the lead partners will advocate for revisions of healthy housing tax credits under the Qualified Allocation Plan to reflect recent research on asthma triggers and irritants and housing construction.
- IV. By 2014, the lead partners will increase the use of integrated pest management for eliminating/reducing pest problems in homes.
- a. By 2014, the lead partners will increase by 2 the number of health

- insurers that reimburse for integrated pest management (IPM) by promoting the ARC business case for insurance coverage of IPM.
- b. By 2014, the lead partners will increase by % the number of affordable and public housing agencies that practice IPM through education and technical assistance.



## **OBJECTIVE: Reduce Exposures to Factors that Cause and/or Exacerbate Asthma in the Work Place.**

**Lead Partners:** Clean Water Action, Massachusetts Coalition for Occupational Safety and Health, Massachusetts Department of Public Health, Massachusetts Nurses Association, Massachusetts Operational Services Division (OSD), Toxics Use Reduction Institute (TURI), University of Massachusetts Lowell – Lowell Center for Sustainable Production

**Where We Are:** Work-related asthma (WRA) is broadly defined to include new onset asthma that is caused by exposures in the workplace and pre-existing asthma that is exacerbated by exposures at work. Recent findings from the Massachusetts Behavioral Risk Factor Surveillance System indicate that WRA is even more common than previously recognized. Public awareness of the potential relationship between workplace exposures and asthma is low. Workers and employers are in need of education and technical assistance regarding approaches to reducing exposures that can cause or exacerbate asthma at work. Policy initiatives to promote changes in the workplace to reduce exposures to known asthma-causing agents are also needed. We have an important opportunity to both provide and collect information about workplace policies addressing asthma through the MDPH's new Worksite Wellness Program.

**Target 2014:** At least one statewide policy initiative to reduce exposures to known asthma causing agents in the workplace will be advanced.

By 2012 Recommendations regarding workplace programs and policies to address asthma at work will be included in the Working on Wellness Toolkit on the MDPH website.

By 2014 information on policies and programs addressing asthma in the workplace will be collected from a random sample of approximately 3000 Massachusetts establishments.

**Background:** The ultimate purpose of this objective is to decrease asthma among Massachusetts residents by reducing exposures at the work site that can cause or exacerbate asthma. A multi-pronged approach to reducing these exposures is needed. First, we need to better understand occupations and industries in which workers are at risk of developing WRA and the relevant exposures. We also need to conduct outreach to raise general awareness of the problem among employers, employees,

environmental and advocacy groups and communities as well as health care providers. However, we must also proceed with steps to address known asthma hazards in workplaces such as auto body shops, schools, manufacturing and health care facilities.

WRA is a reportable condition in Massachusetts, and since 1993 DPH has conducted case-based surveillance of WRA using provider case reports and more recently emergency department data. Follow-up interviews are conducted with individuals to confirm cases and find out more about exposures contributing to their breathing problems. The greatest number of cases identified by the surveillance system are employed in health care, educational services and manufacturing. Cleaning products stand out as commonly reported exposures. While the SENSOR data provide important information about the types of workplaces where workers are at risk, only about 75 cases are identified every year and they are not necessarily representative of the underlying incidence of WRA in the Commonwealth. To generate population-based estimates, MDPH has added questions about WRA to the BRFSS. New analyses of the BRFSS asthma call back data for 2006-07, have shed additional light on the scope of WRA in Massachusetts. Findings indicate that the number of adults with asthma affected by work is much higher than previously thought. An estimated 13.9% of adults with current asthma reported that their asthma was caused or made worse by exposures at their current job; 40.2% of adults with current asthma reported that their asthma was caused or made worse by exposure at a current or previous job. Notably, among adults with current asthma who reported that their asthma was caused or made worse by their work, only 26.8% reported ever telling or being told by a health professional that their asthma is work-related.

Massachusetts has some, albeit limited, capacity to intervene in individual work places to reduce exposures contributing to asthma. The MDPH SENSOR program conducts investigations of select cases reported to the surveillance system and provides prevention recommendations to employers and workers. OSHA may also investigate workplaces upon referral from the MDPH SENSOR program, but OSHA's ability to act is restricted given the inadequacy of current OSHA standards. For many known sensitizing agents, there are no OSHA standards and for others, the standards are not stringent enough to prevent sensitization. The Division of Occupational Safety in the Massachusetts Department of Labor conducts investigations of hazards primarily in public sector workplaces. Additionally, as discussed in the previous section, the MDPH Bureau of Environmental Health conducts air quality investigations in schools and work places that are open to the public. Their efforts to improve schools, child care centers and agencies that deal with the public also protect workers in these settings.

While activities to address asthma hazards in individual workplaces is an important component of a comprehensive prevention effort, broad based activities to reach workplaces are also necessary, and Massachusetts has had some important accomplishments in addressing asthma hazards at



work on the policy front. Most recently MDPH participated in Green Seal GS37 recertification process for institutional and industrial cleaners. This third party certification process allows a transparent, objective review of products that go beyond marketing claims of “natural” or “green.” The updated GS-37 standard prohibits the use of ingredients that are known to cause asthma. The Massachusetts Operational Services Division operates an Environmental Preferable Products (EPP) Procurement Program. The EPP Program promotes purchase and use of environmentally safe products by cities, towns and state agencies by prescreening vendors that offer EPP products and facilitating better pricing through a master contract. OSD requires vendors to disclose information about ingredients that cause asthma, and will soon promote products that exclude asthma-causing ingredients. In the past, MDPH was instrumental in promoting state recommendations to reduce use of latex gloves in health care and food services. Last, but certainly not least, the statewide indoor smoking ban has significantly improved the work environment for many workers, especially those in the service industry where smoking was prevalent.

Increased public awareness of the potential relationship between workplace exposures and asthma is needed to promote change and the MDPH SENSOR program has collaborated with numerous partners to conduct outreach about WRA to workers and the general community. Community partners have included among others, MassCOSH, the Massachusetts Teachers Association and the Massachusetts Federation of Teachers, and the Massachusetts Nurses Association. Efforts to reach employers to raise awareness and address exposures that can cause or aggravate asthma at work have been more challenging. The SENSOR project plans to work more closely with the Safe Shops Initiative implemented by the Boston Public Health Commission to ensure that autobody shops and salons benefit from awareness about asthma risks. SENSOR also has plans to conduct outreach about asthma hazards to licensed hospitals through the existing network of hospital employee health programs participating in the MDPH needle stick injury surveillance system.

The Worksite Wellness Program at MDPH offers an important and exciting new opportunity to increase employer awareness of WRA and to promote policies and practices to address asthma at work. A unique aspect of this program is the collaboration with partners within MDPH and the community to develop an integrated approach that addresses both health promotion in the worksite and health protection (i.e. occupational health and safety risks.) An important initiative of the Worksite Wellness Program is a periodic survey (the Worksite Health Improvement Survey - aka environmental scan) of a sample of 3,000 employers to document wellness policies and practices to improve health. The 2008 survey included general questions about occupational health and safety programs as well as wellness but little specifically about asthma. (Report to be released Spring 2009.) The Worksite Wellness Program also has developed a web-based Working on Wellness Tool Kit for employers which includes basic

information about approaches to addressing asthma in the workplace. Finally the program is working intensively with 23 employers to assist them in developing wellness programs and policies. They have plans to extend this effort with additional employers in the future.

In the next five years, Massachusetts will continue and enhance efforts to increase worker, employer and community understanding of the role of the work environment in asthma and strategies to reduce risks. At the same time, some activities will target reducing hazardous exposures in the work environment and promoting safer alternatives. Additionally, the Worksite Health Improvement Survey will be revised to include questions about asthma activities in the workplace and administered to 3000 establishments. This survey will provide important baseline information to assess future efforts to reduce workplace risks. Plans to improve surveillance of WRA and asthma hazards in Massachusetts workplaces are included elsewhere in this report as are plans to improve diagnosis and treatment of WRA by Massachusetts health care providers. By 2014, we will have created the foundation to develop a more comprehensive plan to reduce exposures in the workplace and in turn the contribution of WRA to the burden of asthma in the Commonwealth.

- I. From 2009 to 2014, MDPH will continue to investigate workplaces and facilitate work-site changes to reduce or eliminate exposures in response to cases of WRA that are reported to MDPH and to complaints about workplaces accessible to the public. DOS will continue to respond to requests for assistance in addressing hazards in public sector workplaces – which under a new Executive Order are now required to implement health and safety programs.
- II. From 2009 to 2014, the lead partners will raise worker and employer awareness of WRA and promote safe work practices to reduce asthma risks in targeted work settings including, among others auto body shops and health care facilities, through publications, trainings and presentations.
  - a. MDPH will collaborate with the Boston Public Health Commission in their Safe Shops Project with auto body shops to promote use of spray booths for painting and use of personal protective equipment.
  - b. MDPH will work with the MAAP Healthy Schools Committee to promote educational services staff protection along with good practices that protect children. See Cleaning for Health Toolkit.
  - c. The Massachusetts Nurses Association will include educational workshops about WRA in periodic health and safety conferences for nurses and will disseminate an on-line educational tool for nurses about work-related asthma in the health care environment.
- III. By 2014, the lead partners will advance (or implement) policy initiatives to decrease exposures to hazardous products in worksites.

- a. By 2009, the Environmental Preferred Purchasing program of the state Operational Services Department (OSD), the state procurement agency, will reference Green Seal GS-37 and Ecologo as a basis for the RFR for environmentally preferable product purchasing.
  - b. From 2010 to 2014, the lead partners will promote the use of cleaning products, approved by Green Seal and Ecologo with state agencies, schools, public housing authorities, unions, and other work sites.
  - c. By 2014, the lead partners will advocate for policies that require the use of safer cleaning products in schools, state buildings and state universities.
  - d. The Toxics Use Reduction Institute will continue to work with partners to coordinate the Healthy Cosmetology Committee and promote policies that limit or eliminate the use of formaldehyde and other asthma triggers in hair salons, barber shops, and other cosmetology settings.
- IV. From 2009 to 2014, the lead partners will collaborate with work-site wellness programs to increase employer awareness of WRA through trainings, materials, and outreach events and to collect information about worksite activities addressing asthma.
- a. By 2010, MDPH will assess whether employers participating in the MDPH Worksite Wellness Program are willing to work on issues related to asthma in the workplace through interviews with worksite wellness staff.
  - b. By 2011 and based on above findings, MDPH will include information about asthma in training and materials provided to the employers participating in the Massachusetts Worksite Wellness Program.
  - c. By 2012, the MDPH SENSOR project will take the lead to expand the information for employers on addressing asthma in the workplace that is included in the Working on Wellness Toolkit available on the MDPH website.
  - d. By 2014, the Worksite Health Improvement Survey will be revised to include questions about asthma activities in the workplace and administered to 3000 establishments.



**OBJECTIVE:** Understand uses and releases of chemicals in Massachusetts that have been found to trigger asthma attacks and also cause asthma in some cases, and develop strategies for replacing them with safer alternatives.

**Lead partners:** Toxics Use Reduction Institute (TURI), University of Massachusetts Lowell – Lowell Center for Sustainable Production

**Where We Are:** Currently, systematic collection of data on chemicals that

can cause asthma and trigger asthma attacks is not done in Massachusetts.

**Target:** Develop a strategy to collect information on chemicals linked to asthma and to identify safer alternatives.

**Background:** Data reported by Massachusetts industries under the Toxics Use Reduction Act (TURA) show thousands of pounds of asthma-gens - chemicals that research has found are capable of causing asthma in certain situations - are used and released into the environment each year. Some asthmagens and chemicals known to be capable of exacerbating asthma are also on the TURA Science Advisory Board's list of more hazardous substances or the TURA program's shorter list of higher hazard substances, which are priorities for action by TURI and partners. A chemical's potential to cause or exacerbate asthma, based on the evidence, has not been used in the past as a key criterion for including substances on the TURA list of toxic and hazardous substances or for designation as a higher hazard substance. However, a number of chemicals linked to asthma are on these lists because they meet other hazard criteria; and asthma will be one of the endpoints considered in future decision-making by the Science Advisory Board. Together with the Massachusetts Office of Technical Assistance, TURI provides expertise to businesses and communities in reducing their use of toxic substances. TURI also works to identify and evaluate safer alternatives for toxic chemicals, with a particular focus on those designated as higher hazard substances. The lead partners will work together on the activities listed under this objective.

- I. By 2010, partners will analyze uses and releases in Massachusetts of asthmagens and chemicals known to exacerbate asthma, and potential links with disease in the state. The lead partners will:
  - a. Analyze data reported under the Toxics Use Reduction Act.
  - b. Analyze data reported under the Sentinel Event Notification System for Occupational Risk (SENSOR).
  - c. Assess existing information about smaller facilities using asthmagens and chemicals that can exacerbate existing asthma (e.g., nail salons dry cleaners, floor finishers and auto body shops).
  - d. Make recommendations about reporting requirements for asthmagens.
- II. From 2010 to 2014, partners will identify opportunities for substantial reductions in selected chemicals linked with asthma through the use of safer alternatives, and provide technical assistance to Massachusetts businesses in reducing their use of these chemicals.
- III. By 2013, partners will propose a process for ongoing assessment of alternatives to uses of asthma-related chemicals and replacement with safer alternatives.



## GOAL

# 4

## Develop a Roadmap for Better Understanding the Causes of Asthma and the Role of Primary Prevention in Massachusetts

**W**hile asthma prevalence continues to increase across the country, Massachusetts asthma prevalence is climbing at a higher rate than the nation as a whole. This goal reflects the concern that increasing rates of asthma in Massachusetts will mean increased burden of the disease on Massachusetts residents and increased health care costs, even if the clinical and environmental management of current asthma improves. This goal recognizes that although the current evidence on effective primary preventative interventions is limited, a roadmap can stimulate additional activity that over time will fill gaps in knowledge and generate promising strategies for reducing rates of disease.

**A** **OBJECTIVE:** The lead partners will develop agreement – “a roadmap” – among experts and other groups on the current evidence on primary prevention, research needed to increase our understanding of prevention of asthma, and evidenced-based strategies that can be currently implemented in Massachusetts.

**Lead Partners:** Toxics Use Reduction Institute (TURI), University of Massachusetts Lowell – Lowell Center for Sustainable Production

**Where We Are:** There currently exists no strategy on improving Massachusetts’ understanding of the primary prevention of asthma.

**Target:** A strategy developed with support from a diverse group of professionals and individuals

**Background:** An important element of the roadmap is a research agenda for the primary prevention of asthma. Massachusetts has some of the premier medical research facilities in the country who can participate in this discussion and work. Prevention of the onset of asthma in individuals can be accomplished in two general ways: 1) Measures that reduce the individual and population-wide vulnerability (or susceptibility) to factors that initiate the onset of asthma and/or 2) measures that eliminate or reduce exposure to factors that, individually or collectively are capable of initiating the onset of asthma in susceptible individuals and populations. A relatively small percentage of research on asthma asks questions relevant to these topics. Moreover, asthma is a complex and heterogeneous disease with final common physiological pathways



that lead to airway inflammation and narrowing. At a population level, multiple interacting factors are involved in creating patterns of asthma prevalence and distribution. These same factors differ in their relative importance among individuals or between sub-populations. In general, an entire eco-social context is important for understanding the relative contribution of individual risk factors in the initiation of asthma and identifying individual and population-wide opportunities for primary prevention. Given these complexities, the development of research questions as well as the design of studies will benefit from participation by researchers and practitioners from a range of disciplines, along with asthma leaders and other resource people whose experience can bring fresh perspective and relevant knowledge.

- I. By 2010, partners will design a process for developing a roadmap for asthma prevention.
- II. In 2010, the lead partners will convene asthma researchers, practitioners, leaders and other resource people in a process to develop a research agenda for Massachusetts on the primary prevention of asthma. The group will review the following issues:
  - Current research on causes of asthma and primary prevention strategies;
  - relevant topics to be explored;
  - approaches for new research,
  - incentives that may be needed to change the way research is done;
  - the research resource-base in Massachusetts to investigate asthma onset questions (facilities, researchers, study data sources, at risk populations, etc.) and;
  - ways to improve funding mechanisms.
- III. By 2011, partners will identify priority pilot initiatives for which to seek funding from public and private sources in and beyond Massachusetts.



## GOAL

# 5

## Increase Capacity of the Statewide and Local Partnerships to Implement the *Strategic Plan for Asthma in Massachusetts*

The complexities of asthma, both in the clinical management and in addressing the environmental factors, require broad partnerships to improve asthma outcomes in Massachusetts. Building strong partnerships assists in improving collaboration, improving public health programming, and eliminating duplication of services.

According to the Allies Against Asthma Project, “(c)oalitions and partnerships hold great promise because they:

- Bring together diverse groups in a community to address issues of mutual interest
- Widen spheres of influence
- Facilitate creativity and innovation in programs and services
- Pool resources to address issues system-wide”<sup>29</sup>

It is essential that the statewide and local partnerships and coalitions across the state have broad membership that is inclusive and diverse. Diversity ensures that the partnership have a representative process that includes the voices of those most affected by asthma. Inclusivity ensures that the partnerships have processes that enhance participation and ensure community participation in all levels of decision making.

This goal focuses on ensuring that Massachusetts has strong, diverse, broad and representative coalitions and partnerships on asthma. Partners helped develop this plan; and it’s the partner who will implement the plan. The success of the strategic plan on asthma relies heavily on a strong statewide partnership to implement and coordinate the plan.

## A

**OBJECTIVE:** Increase the capacity of MAAP and MAAP members to tackle asthma.

**Lead Partners:** Boston Urban Asthma Coalition, Greater Brockton Asthma Coalition, Massachusetts Asthma Advocacy Partnership, Massachusetts Department of Public Health, Pioneer Valley Asthma Coalition

**Where We Are:** According to an evaluation of MAAP conducted in 2008 and 2009:

- *Membership:* 60.6% of survey respondents strongly agreed or agreed that MAAP actively engages its members however, only 39.4%

indicated that MAAP has a process for recruiting new members.

- *Leadership Development:* Survey responses point to a shortage of opportunities for leadership development in MAAP, as 12.5% of respondents disagreed that MAAP makes a conscious effort to develop new leaders and 28.1% of respondents were unsure.
- *Sustainability:* Interviewees and survey respondents noted that MAAP currently does not have the necessary resources related to funds and staffing to achieve its goals most effectively.

**Target:** By 2014, MAAP will have increased its ability to recruit new members, provide leadership development opportunities for its members and increased its capacity to achieve its goals by 30%.

**Background:** The Massachusetts Asthma Advocacy Partnership began in 2007 with a capacity building grant from the Boston Foundation. It has a couple of part-time staff members supporting its work. The Massachusetts Department of Public Health also provides support for MAAP's work. Since 2007, MAAP has developed a membership of over 80 diverse representatives from across the state. It has met quarterly to develop its goals and objectives and draft by-laws. It collaborated with MDPH in the development of this strategic plan on asthma. The evaluation showed that MAAP is off to a good start for a beginning partnership. The focus of this goal is to increase MAAP's capacity to provide leadership in the state through building its membership, developing leadership among its members, and increasing its resources so that it is a sustainable partnership.

MAAP is the lead partner on this goal. The Asthma Prevention and Control Program will provide support to MAAP to accomplish this goal.

- I. By 2014, MAAP will increase its membership to ensure diversity and inclusivity.
  - a. MAAP will develop written by-laws that include provisions on membership recruitment and retention.
  - b. MAAP will actively recruit new members to increase its membership to over 100 active members by 2014.
  - c. MAAP will recruit new members that have been identified in the MAAP evaluation, especially in areas under represented both geographically and organizationally.
  - d. MAAP will develop processes and organizational structure that support involvement and leadership from communities that disproportionately suffer from asthma and environmental exposures and that promote their leadership in MAAP.
  - e. Boston Urban Asthma Coalition will share its model of parent leadership and development with MAAP and the MAAP membership and support its replication in other areas of the state.
- II. By 2014, MAAP will develop processes and organizational structure that develops the leadership skills of its members.

- a. By 2011, MAAP will conduct a skills assessment of its membership base to better match members' skills to the work of the partnership.
  - b. MAAP will provide additional skill building opportunities for members.
  - c. MAAP will develop processes for recognizing the leadership of its members and ensure MAAP leaders receive recognition for their work.
  - d. MAAP will develop mentoring and shared leadership opportunities for its members.
- III. From 2009 to 2014, MAAP will provide technical assistance to local asthma coalitions to increase their capacity to address asthma at the local level.
- a. By 2009, MDPH will assess technical assistance needs of local coalitions and identify the role of MAAP in supporting coalition activities.
  - b. From 2010 to 2014, MAAP will work to address the needs identified in the MDPH assessment.
  - c. From 2009 to 2014, MDPH – Asthma Prevention and Control Program will provide support to MAAP to provide technical assistance to local coalitions.
- IV. By 2014, MAAP will have a more sustainable program that has diverse funding and adequate staffing to accomplish its work.
- a. From 2009 to 2014, MDPH – Asthma Prevention and Control Program will provide resources and technical assistance, as feasible, to MAAP to develop and maintain the statewide partnership.
  - b. By 2014, MAAP will rely less on funding from MDPH to support its work.
  - c. By 2014, MAAP will increase the number of funding sources from two to at least five.
  - d. By 2014, MAAP will have developed strategies to secure additional funding so that it can increase its funding by 30%.



**OBJECTIVE:** Increase the capacity of MDPH to tackle asthma through enhanced coordinated efforts.

**Lead Partners:** Massachusetts Department of Public Health

**Where We Are:** Currently, APCP coordinates internal MDPH efforts on asthma through the Internal Asthma Working Group. Eight MDPH programs attend these monthly meetings. Additionally, APCP has coordinated 20 activities with internal partners in 2008.

**Target:** Increase membership in the Internal Asthma Working Group to 15 programs. Maintain at least 20 coordinated activities with internal partners.

**Background:** Many programs at MDPH impact asthma in the state. In addition to the Asthma Prevention and Control Program, the Bureau of Environmental Health, the Tobacco Control Program, the Occupational Health Program, the Essential School Health Program, among many others, work on asthma or asthma-related issues. To ensure a strong MDPH effort on asthma, this work needs coordination. Since 2008, MDPH has coordinated its efforts through the Internal Asthma Working Group. APCP will continue to lead this group as a focus of coordination. However, not every program can commit to monthly meetings; therefore APCP will also coordinate with programs as opportunities arise.

In addition, MDPH has developed an Integrated Demonstration Project that focuses on coordinating efforts on chronic disease. This effort is supported by the National Center for Chronic Disease Prevention and Health Promotion at the Centers for Disease Control and Prevention. Massachusetts is one of four states selected by the CDC to pilot integrated efforts. Asthma is one of the disease focuses for this group although it has funding restrictions that limit its full participation.

All activities in this section will be lead by the Asthma Prevention and Control Program with support from other programs at MDPH.

- I. From 2009 to 2014, ACPC will coordinate the monthly meetings of the Internal Asthma Working Group.
- II. By 2010, APCP will evaluate its efforts to coordinate asthma work at MDPH.
- III. By 2011, APCP will respond to the results of the evaluation as feasible to improve coordination of efforts to implement the *Strategic Plan for Asthma in Massachusetts*.
- IV. By 2014, APCP will expand membership of the Internal Asthma Working Group to 15 members.
- V. By 2014, MDPH will support optimal resources for on-going implementation of the strategic plan as feasible, including securing additional grant resources.
- VI. From 2009 to 2011, APCP will participate in the Internal Demonstration Project and coordinate asthma efforts with the work of the project as feasible.



**OBJECTIVE:** Update and revise the *Strategic Plan for Asthma in Massachusetts* annually, fully revise it in 2014.



**Lead Partners:** Massachusetts Asthma Advocacy Partnership, Massachusetts Department of Public Health

**Where We Are:** *The Strategic Plan for Asthma in Massachusetts* was developed over a six month period with over 80 partners.

**Target:** By 2014, MAAP will have a state asthma plan that has been revised annually to reflect the priorities of its members, respond to evaluation of its progress, and incorporate new opportunities. By 2014, MAAP will have completely revised its state asthma plan.

**Background:** This document was developed with significant input from partners across the state. However, due to time constraints it was developed in quickly. In the future, MAAP and MDPH plan to spend a year in developing the next state asthma plan in 2014. The work on the current plan will help inform the goals and objectives of the next plan.

- I. Annually update the *Strategic Plan for Asthma in Massachusetts* and identify specific strategies, measurable outcomes and time frames for objectives.
- II. From 2009 to 2014, MAAP and APCP will identify other organizations, state and local government agencies and other entities to agree to address the goals and objectives of the strategic plan.
- III. From 2009 to 2014, MAAP and APCP will encourage lead partners to use the plan to shape their internal work plans and strategic plans.

## GOAL

# 6

## Evaluate Massachusetts' Progress on the *Strategic Plan for Asthma in Massachusetts*



**E**valuation is a systematic way of assessing whether the work of public health is resulting in the intended outcomes. Without a strong evaluation component, it will be difficult to assess the impact of the activities under the strategic plan. Evaluation under this goal will be practical and on-going. To aid in evaluating the effectiveness of the state plan, outcomes measures have been developed for each objective. They will serve as the basis of evaluating the outcomes measure of this plan. However, other evaluation components will strengthen our assessment.

A

**OBJECTIVE:** By 2014, the lead partners will have an increased understanding of progress made on the *Strategic Plan for Asthma in Massachusetts 2009 – 2014*.

**Lead Partners:** Massachusetts Asthma Advocacy Partnership, Massachusetts Department of Public Health

**Where We Are:** Baseline estimates developed for each objective.

**Target:** Estimates updated every other year. Expand evaluation plan beyond baseline estimates to include process measures.

### Background:

- I. By 2009, APCP will evaluate process used to develop and review findings of strategic plan to inform plan revision in 2014.
- II. By 2010, APCP and MAAP will work with key lead partners to develop evaluation plan.
  - a. Expand evaluation plan beyond baseline estimates and to include process measures.
- III. Lead partners will meet annually to assess progress on strategic plan.



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# Appendices

# ACRONYMS

|                 |  |
|-----------------|--|
| <b>AAFANE</b>   | Asthma and Allergy Foundation – New England Chapter        |
| <b>ACCP</b>     | American College of Chest Physicians                       |
| <b>APCP</b>     | Asthma Prevention and Control Program, MDPH                |
| <b>ARC</b>      | Asthma Regional Council of New England                     |
| <b>BPHC</b>     | Boston Public Health Commission                            |
| <b>BRFSS</b>    | Behavioral Risk Factors Surveillance Survey, MDPH          |
| <b>BEH</b>      | Bureau of Environmental Health, MDPH                       |
| <b>BUSPH</b>    | Boston University School of Public Health                  |
| <b>CDC</b>      | Centers for Disease Control and Prevention                 |
| <b>CHNA</b>     | Community Health Network Area                              |
| <b>CI</b>       | Confidence interval  |
| <b>CMAQ</b>     | Congestion Mitigation and Air Quality                      |
| <b>DERA</b>     | Diesel Emission Reduction Act                              |
| <b>DHCFP</b>    | Division of Health Care Finance and Policy                 |
| <b>ED</b>       | Emergency Department                                       |
| <b>EEA</b>      | Executive Office of Energy and Environmental Affairs       |
| <b>EOHHS</b>    | Executive Office of Health and Human Services              |
| <b>EPA</b>      | Environmental Protection Agency                            |
| <b>EPHT</b>     | United States Environmental Public Health Tracking, MDPH   |
| <b>EPP</b>      | Environmentally preferred products                         |
| <b>EPR3</b>     | Expert Panel Report 3                                      |
| <b>ESHSS</b>    | Essential School Health Services, MDPH                     |
| <b>HCQCC</b>    | Health Care Quality and Cost Council                       |
| <b>HEDIS</b>    | Healthcare Effectiveness Data and Information Set          |
| <b>HP2010</b>   | Healthy People 2010  |
| <b>IAQ</b>      | Indoor Air Quality Program, MDPH                           |
| <b>IM</b>       | DEP's Inspection and Maintenance Program                   |
| <b>IOM</b>      | Institute of Medicine                                      |
| <b>IPM</b>      | Integrated pest management                                 |
| <b>LEV</b>      | Low Emission Vehicle Program                               |
| <b>MA</b>       | Massachusetts  |
| <b>MAAP</b>     | Massachusetts Asthma Advocacy Partnership                  |
| <b>MassCOSH</b> | Massachusetts Coalition for Occupational Safety and Health |
| <b>MassDEP</b>  | Massachusetts Department of Environmental Protection       |



|                       |   |
|-----------------------|---|
| <b>MECCS</b>          | Massachusetts Early Childhood Comprehensive Systems Project |
| <b>MDPH</b>           | Massachusetts Department of Public Health                   |
| <b>NAAQS</b>          | National Ambient Air Quality Standards                      |
| <b>NCQA</b>           | National Committee for Quality Assurance                    |
| <b>NHANES</b>         | National Health and Nutrition Examination Survey            |
| <b>NO</b>             | Nitric oxide  |
| <b>NO<sub>2</sub></b> | Nitrogen dioxide  |
| <b>NO<sub>x</sub></b> | Oxides of nitrogen  |
| <b>OSD</b>            | Operational Services Department                             |
| <b>OSHA</b>           | Occupational Safety and Health Administration               |
| <b>PM</b>             | Particulate matter  |
| <b>RFR</b>            | Request for proposal  |
| <b>SENSOR</b>         | Sentinel Event Notification System for Occupational Risk    |
| <b>SO<sub>2</sub></b> | Sulfur dioxide  |
| <b>TURA</b>           | Toxics Use Reduction Act                                    |
| <b>TURI</b>           | Massachusetts Toxics Use Reduction Institute                |
| <b>UMass Lowell</b>   | University of Massachusetts Lowell                          |
| <b>US</b>             | United States   |
| <b>VOCs</b>           | Volatile organic compounds                                  |
| <b>WRA</b>            | Work-related asthma   |

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